DECLARATION STATEMENT

RECORD OF DECISION

SCIENTIFIC CHEMICAL PROCESSING SITE

SITE NAME AND LOCATION

Scientific Chemical Processing Site
216 Paterson Plank Road
Carlstadt, Bergen County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedial action for the Scientific Chemical Processing (SCP) site located at 216 Paterson Plank Road in Carlstadt, New Jersey. This interim remedy was chosen by EPA in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Contingency Plan. This decision document summarizes the factual and legal bases for selecting the interim remedy for the site. The attached index identifies the items that comprise the administrative record for the site upon which this decision is based.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The soil and groundwater above the clay silt layer which exists across the entire SCP site (i.e., the first operable unit zone) constitute the most highly contaminated materials at the site. Numerous hazardous substances and pollutants and contaminants are present in this zone, many of which have migrated out of this zone into the underlying aquifers and Peach Island Creek which adjoins the site. The primary objective of the interim remedy identified in this decision document is to reduce the migration of such hazardous substances into the groundwater and surface water until a permanent remedy for the site is selected and implemented.

EPA intends to issue one or more Records of Decision in the future relating to this site. These Records of Decision will select those final remedial actions for addressing the soils in the first operable unit zone, as well as any areas located outside this zone which may have been adversely affected by the migration of hazardous substances and/or pollutants and contaminants from the site.

The elements of this interim remedy are prerequisite components of a permanent remedial action for the first operable unit zone and are consistent with the final remedial actions which are likely to be selected for this site.

The interim remedy selected in this decision document contains the following components:

1. Installation of a slurry wall around the entire site and a temporary infiltration barrier over the site;

2. Installation of a groundwater collection system and extraction of groundwater from the first operable unit zone within the slurry wall to maintain the water level in this zone at the lowest practicable level;

3. Transportation of all extracted groundwater to an appropriate off-site facility (or facilities) for treatment and/or disposal; and

4. Operation and maintenance of the components of this interim remedy and environmental monitoring to ensure continued achievement of the objectives of the interim remedy.

Additional details and discussions of the selected interim remedy are found in the Decision Summary for this Record of Decision.

STATUTORY DETERMINATIONS

Section 121(d)(1) of CERCLA requires that remedial actions attain a degree of cleanup of hazardous substances, pollutants and contaminants released into the environment and of control of further releases which, at a minimum, assures protection of human health and the environment. This interim action will reduce the migration of hazardous substances, pollutants and contaminants out of the first operable unit zone. Thus, the threat to human health and the environment which is posed by the conditions at the site will be reduced more quickly by implementing this interim action. This interim action will not, however, in and of itself, be fully protective of human health and the environment. It must be followed by subsequent action(s) in order to achieve an acceptable level of protection of human health and the environment.

This interim action is cost effective. It is a component of a remedy for the first operable unit zone which will, when completed, meet applicable or relevant and appropriate requirements (ARARs) which relate to this site. This interim action will only comply with Federal and State requirements that are directly associated with the implementation of this action. It is not designed to nor will it attain chemical specific ARARs for hazardous substances which will remain in the soil and/or groundwater in or under the first operable unit zone.

This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable, given the limited scope of the action. Because the action does not constitute the final remedy for this first operable unit zone, the statutory preference for remedies that employ treatment as a principal element to reduce the toxicity, mobility and volume of hazardous substances will not be addressed until the final remedial action is selected. EPA intends to select and require the implementation of remedial actions which will fully address the principal threats posed by this site and to achieve the level of cleanup at this site required by CERCLA.

Constantine Sidamon-Eristoff, Regional Administrator
U.S. EPA Region II

September 14, 1990
Date

DECISION SUMMARY

SCIENTIFIC CHEMICAL PROCESSING SITE

SITE LOCATION AND DESCRIPTION

The Scientific Chemical Processing Carlstadt site (the SCP site or the site) is located at 216 Paterson Plank Road, in the Borough of Carlstadt, Bergen County, New Jersey. The site is bounded by Paterson Plank Road on the south; Gotham Parkway on the west; Peach Island Creek, a tributary to Berry's Creek on the north; and a trucking company on the east (See Figure 1). The site covers approximately 5.9 acres of relatively flat, sparsely vegetated land. The site is fenced on three sides (east, west, and south), with a locked main entrance gate on Paterson Plank Road.

Land use in the vicinity of the site is classified as light industrial. Businesses in the immediate vicinity of the site include warehouses, freight carriers, light chemical, leather goods, electronics and other service sector industries. The site is located across the street from the Meadowlands Sports Complex, a large facility for professional sports and public recreation events (See Figures 1 and 2).

The population of the Borough of Carlstadt resides mainly within the residential and commercial areas of the borough (as shown on Figure 2), however, there are three dwellings which exist within approximately one mile of the site.

Lands bordering Peach Island Creek and Berry's Creek are classified as waterfront recreation zones. The site is located within the Hackensack Meadowlands District, an extensive area of salt water marshes drained by the Hackensack River and its tributaries. Berry's Creek, one of those tributaries, drains approximately 800 acres of marshland including Walden Swamp and Eight-Day Swamp. Although there are wetlands in the vicinity of the site, the site itself is classified as an upland area.

Groundwater in the water table aquifer underlying the site flows into Peach Island Creek. Water in this aquifer also flows towards Gotham Parkway, Paterson Plank Road and the adjoining property to the east. A significant component of groundwater flow is also downward. Although the water table and till aquifers in the immediate vicinity of the site are not known to be used for drinking water, the bedrock aquifer which extends beneath the site is used for potable as well as industrial purposes.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The site, which is owned by Inmar Associates, Inc., was operated during the 1970s by Scientific Chemical Processing, Inc., for the handling, treatment and disposal of a wide variety of industrial and chemical wastes. Similar operations also occurred on the site prior to 1970. In 1980, operations at the facility ceased. In 1983, the site was placed on the National Priorities List.

On or about May 17, 1985, the U.S. Environmental Protection Agency (EPA) issued notice letters to approximately 140 Potentially Responsible Parties (PRPs), offering them the opportunity to undertake a Remedial Investigation and Feasibility Study (RI/FS) at the site. The purpose of the RI/FS was to determine the nature and extent of contamination at the SCP site, and to develop remedial alternatives to address that contamination. On September 30, 1985, EPA issued an Administrative Order on Consent to 108 of the PRPs who agreed to conduct the RI/FS. On October 23, 1985, EPA issued a Unilateral Administrative Order to 31 PRPs who failed to sign the Consent Order, requiring them to cooperate with the 108 consenting parties and participate in the RI/FS.

On October 23, 1985, EPA also issued an Administrative Order to the site owner, Inmar Associates, Inc., requiring the company to remove and properly dispose of the contents of five tanks containing wastes contaminated with polychlorinated biphenyls (PCBs) and numerous other hazardous substances. Inmar completed the removal of four of these tanks by the summer of 1986. EPA subsequently sued Inmar for late performance of the work required by that order and recovered more than $300,000 in penalties for violation of that order.

The PRPs initiated the RI/FS in April, 1987. The results of the RI/FS work conducted to date are discussed below.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Report, the Proposed Plan and other documents which comprise the administrative record for this interim remedy for the SCP site were released to the public for comment on May 19, 1990. These documents were made available to the public at the EPA Docket Room in Region II and at the William E. Dermody Free Public Library in Carlstadt, New Jersey. On May 19, 1990, EPA also published a notice in the "Bergen Record" which contained information relevant to the public comment period for the site, including the duration of the public comment period, the date of the public meeting and availability of the administrative record. The public comment period began on May 19, 1990 and ended on June 18, 1990. In addition, a public meeting was held on June 5, 1990, at which representatives from EPA and the New Jersey Department of Environmental Protection (NJDEP) answered questions regarding the site and the interim actions under consideration. Responses to the significant comments received during the public comment period are included in the Responsiveness Summary, which is part of this Record of Decision (ROD).

SCOPE AND ROLE OF THIS RESPONSE ACTION WITHIN OVERALL SITE STRATEGY

The SCP site is extremely complex, because of the wide variety of contaminants present, the high concentrations of contaminants detected, and the many potential migration routes for these contaminants. Consequently, EPA has divided the response actions for the site into several operable units (OUs). The OUs for the site are defined as follows:

OU 1: this OU will address remediation of conditions in the FOU zone at the site, including remediation of contaminated soils and groundwater above the clay layer; and,

OU 2: this OU will address remediation of conditions outside the FOU zone, including remediation of the contamination in the till and bedrock aquifers and Peach Island Creek.

Some of the PRPs conducted studies to evaluate potential remedial alternatives for soils and groundwater in the First Operable Unit (FOU) zone. In addition to the No Action Alternative, various technologies for treating the most heavily contaminated zone were evaluated, including solidification of the soils/sludges, chemical extraction of contaminants from the soils/sludges, and incineration of the soils/sludges in the FOU zone. Treatability studies were also performed in order to test the effectiveness of several treatment methods for remediating contaminated soils, sludges and groundwater. Specific studies conducted included incineration, contaminant extraction, and solidification/stabilization of the site soils and sludges, as well as peroxidation, carbon adsorption, steam stripping and critical fluid extraction of the shallow groundwater.

The results of these studies indicated that, although there are several treatment methods which may be viable for remediating soils and sludges in the FOU zone, there are uncertainties regarding the relative effectiveness of various treatment technologies. Consequently, it is desirable to further assess treatment alternatives prior to the selection of a permanent remedy for the FOU zone which will be protective of human health and the environment.

The FS demonstrated that, in order to treat the heavily contaminated saturated soil, it would be necessary to first remove the shallow groundwater from this zone (i.e., dewater this zone). Consequently, each of the alternatives evaluated in the FS (with the exception of the No Action Alternative) includes implementation of a "dewatering" system. This system consists of:

1) installation of an underground slurry wall around the site perimeter, down to the clay layer;

2) extraction of groundwater from within the boundary of this wall; and,

3) subsequent treatment and disposal of the groundwater.

Dewatering the FOU zone will facilitate implementing a final remedy for the soils and sludges located within this zone.

Although further work is planned to evaluate treatment technologies for the soils and sludges, there is enough information currently available for EPA to select an interim action to temporarily reduce migration of contaminants out of the FOU zone until further studies of the site are completed and a final remedy for the FOU zone is selected.

Since the dewatering system is a common component of all alternatives evaluated to date (with the exception of the No Action Alternative), it will be consistent with any potential future remedy which EPA will select for the site. This dewatering system will also be part of a future permanent remedy which will protect human health and the environment. Although this alternative is not fully protective in and of itself, it is expected to be effective in temporarily reducing further migration of contaminants from the shallow zone until a permanent remedy can be implemented.

SUMMARY OF SITE CHARACTERIZATION

1. Site Geology

The results of the RI indicate that the site stratigraphy consists of the following units, in descending order with depth: earthen fill material (average thickness of approximately 8.4 feet across the site); peat (thickness ranging from 0 to approximately 1.8 feet across the site); gray silt (average thickness of approximately 2 feet across the site); varved clay (thickness ranging from 0 to 18 feet across the site); red clay (thickness ranging from 0 to 8 feet across the site); till (consisting of sand, clay and gravel, average thickness of approximately 20 feet across the site); and bedrock (See Figure 3).

The site is underlain by three hydrologic units which are described as the "shallow aquifer", the "till aquifer" and the "bedrock aquifer" in descending order with depth. The water table is found in the shallow aquifer at a depth of approximately two feet below the land surface. The till aquifer consists of the water-bearing unit between the clay and the bedrock. The bedrock aquifer is the most prolific of the three aquifers and is used regionally for potable and industrial purposes. Results of hydrogeologic tests conducted during the RI indicate that the three aquifers are hydraulically connected. Chemical analyses of groundwater from the three aquifers provides further support to this finding. Specifically, chemical data demonstrates that contaminants from the shallow aquifer have migrated across the clay-silt layer into the till and bedrock aquifers.

2. Soil Contamination

Soil samples were collected and analyzed for Priority Pollutants and certain additional parameters from seventeen locations at the site (See Figure 5). Samples were collected at depth, at the following intervals: 0-2 feet, 5-6 feet, and at the top of the clay-silt layer. Tables 1, 2, and 3 summarize the number of occurrences and maximum concentrations of chemicals detected in soils at each of the three sampling depths. The results indicate that a wide variety of contaminants, including volatile organic compounds (VOCs), acid extractable compounds, base/neutral compounds, PCBs, metals, petroleum hydrocarbons and pesticides were detected at high levels at all depths sampled.

In addition, soil samples were collected from three locations within the clay layer. Table 4 summarizes the number of occurrences and maximum concentrations of hazardous substances detected in the clay-silt layer. The results demonstrate that many of the chemicals detected in the overlying soils and fill material have migrated down into the clay-silt layer. For example, the levels of VOCs detected in these three deep borings are indicated on Figure 6. As evidenced by the analytical results, VOCs have migrated down into and through the clay-silt layer. This layer is not preventing downward migration of hazardous substances from the FOU zone into the till aquifer.

Provided below are the average concentration for the various classes of contaminant compounds detected at the four depths sampled.

	Average Concentration in Parts Per Million			
Compound Class	0-2 feet[1]	5-6 feet[2]	Top of the Clay	Within the Clay
Volatile Organic	1,068.0	2,069.0	153.0	361.0
Base/Neutral	147.0	343.0	20.0	0.5
Acid Extractable	12.0	169.0	9.2	0.3
PCBs	1,048.0	62.0	1.8	0.2
Cyanides	4.7	8.5	3.5	
Phenolics	50.0	66.0	6.6	1.5
Petroleum Hydrocarbons	13,167.0	8,507.0	1,164.0	82.5

[1]Unsaturated zone.

[2]Saturated zone.

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Compound Class	Average Concentration in Parts Per Million			
	0-2 feet	5-6 feet	Top of the Clay	Within the Clay
Selected Metals[3]:				
Chromium	171	92	22	28
Copper	8,788	1,425	786	30
Lead	667	735	111	12
Zinc	623	564	2,865	73

As demonstrated by the above data, although the highest levels of contaminants are found in the soils above the clay layer, contaminants have migrated from the unsaturated, surficial soils into the saturated soils and down into the clay layer.

3. Tank Sludge

Four tanks containing PCB contaminated sludge were removed and disposed of as part of the removal actions conducted by the site owner during 1986. A fifth tank containing extremely high levels of PCBs, metals and other contaminants was not removed because disposal facilities capable of accepting such wastes were unavailable. Table 5 shows the results of the analyses conducted on the material in the remaining tank. The tank has been placed in a roll-off container and secured with a tarpaulin. Because the constituents of the tank sludge are similar to those found in the site soils, the ultimate disposal and/or treatment method for the sludge will be considered with those methods evaluated for the soils.

4. Groundwater Contamination

As stated previously, three aquifers have been identified at the site: the water table, the till aquifer, and the bedrock aquifer. During the RI, ten groundwater monitoring wells were installed: seven in the water table aquifer, and three in the till aquifer (See Figure 5). Sampling results from these wells demonstrated severe contamination of the shallow aquifer and migration of hazardous substances down into the till aquifer. An additional well was installed in the bedrock aquifer to determine if it had been impacted by hazardous substances in the water table and till aquifers above it. Data from this monitoring well revealed that many of the same hazardous substances which were present in the FOU zone and the till aquifer were present in the bedrock aquifer. The analytical results from the groundwater sampling efforts conducted during the RI are discussed below.

[3]This is a limited list of metals which were detected at the site.

The water table aquifer is contaminated with a variety of hazardous substances. Table 6 provides a summary of the number of occurrences and maximum concentrations of chemicals detected. Contaminants detected included volatile organic compounds, semi-volatile organic compounds, pesticides, PCBs, and metals. Many of the hazardous substances found in the water table aquifer are identical to those detected in soils in the FOU zone. For example, benzene, chloroform, 1,2-dichloroethane, toluene, trichloroethylene, PCB Aroclor 1242, vinyl chloride, arsenic and copper were detected in both the FOU zone soils and the water table aquifer.

Groundwater in the water table aquifer underlying the site flows into Peach Island Creek. Water in this aquifer also flows towards Gotham Parkway, Paterson Plank Road and the adjoining property to the east. A significant component of groundwater flow is also downward into the underlying till aquifer.

Groundwater quality data collected from the till aquifer demonstrate that hazardous substances have migrated from the soils in the FOU zone and from the water table aquifer down through the clay layer into the till aquifer. Table 7 provides a summary of the number of occurrences and maximum concentrations of chemicals detected in the till aquifer. Contaminants detected include volatile organic, semi-volatile organic, pesticides, PCBs, and metals. Many of the hazardous substances found in the till aquifer are similar in type and/or identical to those detected in soils in the FOU zone and in the water table aquifer. For example, chloroform, 1,2-dichloroethane, toluene, trichloroethylene, vinyl chloride, and copper were all detected in the soils in the FOU zone, the water table aquifer and the till aquifer.

The bedrock aquifer is hydraulically connected to the till aquifer. Pump tests conducted during the RI/FS demonstrated this connection. Groundwater quality data also demonstrate that hazardous substances have migrated from the till aquifer into the bedrock aquifer. For example, chloroform, 1,2-dichloroethane, vinyl chloride and copper were all detected in both the till aquifer and bedrock aquifer.

The groundwater quality data collected in all three aquifers also reveals that, although the highest levels of hazardous substances and pollutants and contaminants are found in the soils in the FOU zone and in the water table aquifer, some of these contaminants, particularly VOCs, have migrated from this aquifer into the till and bedrock aquifers.

5. <u>Surface Water and Sediment Contamination</u>

Peach Island Creek, a tributary of Berry's Creek, flows adjacent to the site. The RI included limited sampling and analyses of surface water and sediment from Peach Island Creek.

Water quality and sediment samples were collected at four sampling stations along Peach Island Creek. The locations are depicted on Figure 7 and include the following: the confluence of Peach Island

Creek and Berry's Creek (approximately one-half mile downstream from the site); 100 feet downstream of the site; adjacent to the center line of the site; and 100 feet upstream of the site. One surface water sample and two sediment samples (from 0 to 6 inches and from 12 to 18 inches below the surface of the stream bed) were collected at each location.

Studies performed in conjunction with the RI indicated that the water table aquifer at the site flows into Peach Island Creek. As discussed above, this aquifer is grossly contaminated by numerous hazardous substances and pollutants and contaminants.

The RI results indicate that the surface water and sediment in Peach Island Creek are also contaminated with hazardous substances. Table 8 provides a summary of the number of occurrences and maximum concentrations of chemicals detected in the Creek. Tables 9 and 10 provide the number of occurrences and maximum concentrations of chemicals detected in the sediment samples taken from the Creek.

Many of the hazardous substances found in the surface water and sediment in Peach Island Creek are identical to those detected in soils and groundwater at the site. For example, 1,1,1-trichloroethane, chloroform, mercury, arsenic, dieldrin and PCB Aroclors (1242, 1254, 1260, and 1248) were all detected in soils and groundwater at the site and in the surface water and sediment of Peach Island Creek.

The RI indicated that hazardous substances have been released onto the soils and into the groundwater at the site. Furthermore, such hazardous substances have migrated and continue to migrate from the soils and water table aquifer in the FOU zone into underlying groundwater aquifers and into Peach Island Creek, a tidal waterway adjoining the site. The presence of the many hazardous substances, pollutants and contaminants in the soil and in the water table aquifer in the FOU zone at the site, particularly without the presence of any control or containment facilities, pose a threat of continued release and future releases of such substances into the environment in the future.

In summary, the RI results indicate the following:

- on-site soils, both at the surface and down to a depth of at least 10-12 feet, are heavily contaminated with hazardous substances, including volatile and semi-volatile organic compounds, pesticides, PCBs, and inorganic compounds;

- the shallow groundwater at the site is heavily contaminated with hazardous substances, including volatile and semi-volatile organic compounds, pesticides and inorganic compounds;

- hazardous substances have migrated from the FOU zone down into and through the clay layer (which lies between the water table aquifer and deeper aquifers) into the till and bedrock aquifers at the site;

- groundwater in the till and bedrock aquifers at the site is contaminated with a number of hazardous substances and pollutants and contaminants, including some volatile and semi-volatile organic compounds;

- hazardous substances similar in type and/or identical to those found in the soils in the FOU zone have been found in the water table, till and bedrock aquifers; and

- surface water and sediment in Peach Island Creek, which flows adjacent to the site, are contaminated with hazardous substances similar in type and/or identical to those which were found in the soils and groundwater at the site.

The RI did not fully define the extent of contamination in off-site areas, the bedrock aquifer and in surface water bodies. Such characterization will be the subject of further investigation during and/or after the implementation of this interim remedy.

SUMMARY OF SITE RISKS

A baseline risk assessment was conducted by EPA through its contractor during the RI/FS to evaluate the health and environmental risks posed by contamination at the SCP site. The data collected during the RI revealed that at least 87 chemicals exist in the soil and shallow groundwater at the site. The highest concentrations of hazardous substances found on site are found in the soil and/or groundwater above the clay layer. Many of the chemicals detected in the soils and groundwater at the site are known human carcinogens (e.g. vinyl chloride, arsenic, and benzene). Many others are known carcinogens in animals and are suspected human carcinogens (e.g. PCBs, chloroform, 1,2-dichloroethane, methylene chloride.)
Many of the hazardous substances detected in groundwater at the site were present at levels which far exceed Federal and State standards and guidelines for groundwater quality. In particular, the levels of numerous VOCs, PCBs, and several inorganic compounds exceed the Federal Maximum Contaminant Levels (MCLs) established for these chemicals under the Safe Drinking Water Act and the New Jersey MCLs, sometimes by several orders of magnitude. In addition, contaminant levels in soils in the FOU zone exceed the New Jersey Soil Action Levels for VOCs, PCBs, base-neutral compounds, metals, and petroleum hydrocarbons.

The data collected to date demonstrate the following: (1) there has been migration of hazardous substances from the soils in the FOU zone into the water table, and from the FOU zone down into the till and the bedrock aquifers (the bedrock aquifer is presently used regionally for potable and industrial purposes); (2) surface water runoff and/or direct groundwater discharge from the site has resulted in contamination of sediments and surface water in Peach Island Creek; (3) the potential for further lateral migration of hazardous substances out of the FOU zone in groundwater to off-site areas and into the till and bedrock aquifers beneath the site exists; and (4) the potential also exists for contaminant migration from the site into the atmosphere by volatilization and/or particulate suspension also exists.

The baseline risk assessment identified pathways through which humans may be exposed to site contaminants. The potential human exposure pathways include direct contact with surface soil, inhalation of volatile organics, inhalation of suspended solids and ingestion of groundwater and surface water.

The baseline risk assessment and the RI results indicate that the conditions at the SCP site pose an unacceptable risk to public health, welfare and the environment. In addition, there will be a continued threat of migration of hazardous substances from the site absent the implementation of remedial actions. The interim remedial action selected in this ROD will mitigate, for the short term, the unacceptable risk posed by the conditions at the site and future migration of hazardous substances from the site.

The interim remedy identified in this ROD will not achieve the level of protection for the public health welfare and the environment required by CERCLA for a final remedial action. It will also not achieve the requisite reduction in mobility, toxicity and volume of hazardous substances at the site required by that statute. The interim remedy, however, will be a component of a final remedy for the FOU zone that will ultimately be protective of public health and the environment.

In summary, actual or threatened releases of hazardous substances from this site, if not addressed by implementing the interim remedy selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF ALTERNATIVES

Alternatives analyzed for the interim action are presented below.

Alternative 1: No Action

Capital Cost:	$ 0
Annual Operation and Maintenance (O & M) Costs[4]:	$ 42,000
Present Worth:	$ 120,000 (est.)

Months to Design and Construct: 0

The NCP requires that the No Action alternative be evaluated at every site to establish a baseline for comparison of other alternatives. Under the No Action alternative, EPA would not take an interim action at the site to control migration of contaminants

[4]O&M costs are based on the three year expected duration of the interim remedy.

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to groundwater and Peach Island Creek. The fence around the site property would continue to be maintained to restrict access to the site, however. The No Action alternative also includes periodic monitoring of groundwater.

<u>Alternative 2: Site Dewatering through Installation of a Slurry Wall and a Groundwater Collection and Treatment System</u>

Capital Cost:	$ 4,586,000	
Annual O & M Cost[4]:	$ 109,000	(for 3 years)
Present Worth:	$ 5,164,000	

Months to Design and Construct: 12-24

Major features of this alternative include: installation of an underground slurry wall around the perimeter of the site, installation of a groundwater collection system within the boundary of the slurry wall, and construction of groundwater treatment plant to treat collected groundwater prior to discharge to Peach Island Creek. The treatment plant would be designed to meet NJPDES requirements for discharge of treated groundwater to Peach Island Creek. (See preliminary discharge standards, provided to EPA by NJDEP by letter dated April 16, 1990, contained in the Administrative Record for this site.)

In addition, an infiltration control barrier would be placed over the site. The sole function of this temporary barrier is to reduce the infiltration of precipitation into the FOU zone. This will tend to reduce the volume of water which would require treatment, and thus reduce the cost of treatment.

<u>Alternative 3: Site Dewatering through Installation of a Slurry Wall and Groundwater Collection and Off-site Disposal</u>

Capital Cost:[5]	$ 2,557,000	
Annual O & M Cost[4]:	$ 42,000	(for 3 years)
Present Worth:	$ 2,933,000	

Months to Design and Construct: 9-15

This alternative is identical to Alternative 2, except that groundwater would be transported to and disposed of at an EPA approved off-site facility (or facilities) capable of accepting the extracted groundwater without any pretreatment on site. Consequently, construction of an on-site groundwater treatment facility would not be necessary.

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[5]The cost of off-site transportation (i.e., via tanker truck) and disposal have been incorporated into the capital cost. The off-site transportation and disposal cost are based upon cost estimates for transportation to and disposal of extracted groundwater at the E.I. Dupont de Nemours facility in Deepwater, New Jersey, as provided to EPA by some of the PRPs.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The selected alternative is to take interim action at the site by implementing Alternative 3. This alternative is a necessary component of any permanent future remedy for the FOU zone and would appear to provide the best balance of trade-offs among the alternatives with respect to the criteria that EPA uses to evaluate alternatives. This section profiles the performance of the selected alternative against the criteria which apply to this interim action, noting how it compares to the other options under consideration.

<u>Overall Protection of Human Health and the Environment</u>: This criterion addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls or institutional controls. Alternative 1 would not be protective of human health and the environment since contaminants would continue to migrate from the soils and shallow aquifer to deeper aquifers and Peach Island Creek. Alternatives 2 and 3 would reduce the risk to human health and the environment in the short term by reducing migration of hazardous substances away from the FOU zone until a final remedy is in place.

<u>Compliance with ARARs</u>: This criterion addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) derived from Federal and/or State statutes and/or regulations and/or provide grounds for invoking a waiver.

There are several types of ARARs: action-specific, chemical-specific, and location-specific. Action-specific ARARs are technology or activity-specific requirements or limitations. Chemical-specific ARARs establish the amount or concentrations of a chemical that may be found in, or discharged to, the environment. Location-specific requirements are restrictions placed on the concentrations of hazardous substances or the conduct of activities solely because they occur in a specific location.

Section 121 of CERCLA does not require chemical specific ARARs for hazardous substances remaining onsite be achieved by an interim measure. These requirements must be achieved, however, upon completion of the permanent remedy. Therefore, since Alternatives 2 and 3 constitute interim actions, final cleanup levels for soil and groundwater do not have to be achieved by these Alternatives.

However, certain action-specific requirements, discussed below, would have to be attained as part of the implementation of Alternatives 2 or 3. Alternative 2 must comply with effluent limitations for any discharge from groundwater treatment plant into Peach Island Creek. In addition, the treatment plant must be designed and operated in compliance with Federal and State air emissions requirements. For Alternative 3, requirements pertaining to any off-site disposal facility will be met.

Both Alternatives 2 and 3 would comply with the Executive Orders on Flood Plain Management, and Wetlands Protection, the Clean Water Act Section 404 General Standards for Permitting Stream Encroachment, and the New Jersey Soil Erosion and Sediment Control Requirements (N.J.A.C. 4:24-1) to the extent practicable. In addition, both alternatives would comply with the regulations of the Hackensack Meadowlands Development Commission.

<u>Short-Term Effectiveness:</u> This criterion refers to the time in which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment during the construction and implementation period.

Alternative 1 presents the least short-term risks to on-site workers since no construction activities are involved in implementing the No Action alternative. However, it would not reduce any of the existing risks at the site. Alternatives 2 and 3 would require health and safety protection measures during the remedial construction to adequately protect workers. These measures may include requirements for protective clothing and respiratory protection. Health and safety measures to protect the community, such as dust or vapor suppression, may also be required. However, neither Alternative 2 nor 3 present implementation problems which cannot be properly addressed by available construction methods.

Alternative 2 will take 9 months to design and 9 months to construct. Alternative 3 would take 6 months to design and 6 months to construct. Therefore, Alternative 3 would reduce the migration of hazardous substances from the site more quickly. Both Alternatives 2 and 3 will accelerate ultimate remediation of the FOU zone since both alternatives contain components which are consistent with and are likely elements of a final remedy for the site.

<u>Implementability:</u> Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the selected alternative.

Alternative 1 is the simplest alternative to implement from a technical standpoint since it only involves actions to periodically inspect and sample the site, ensure restricted access to the site, and continue to provide information about the site to the surrounding community.

The operations associated with Alternative 2 (construction of a slurry wall, dewatering system, and groundwater treatment system) generally employ well established, readily available construction methods and materials. However, the placement of a treatment plant on site may pose some difficulties with respect to implementing a permanent remedy for soils, since the plant would physically obstruct access to the soils for any potential future treatment.

In addition, the ability of a treatment system to meet the administrative requirements (see below) for discharge to Peach Island Creek, cannot presently be determined.

The operations associated with Alternative 3 (construction of a slurry wall, dewatering system, and off-site treatment and disposal of groundwater) employ well established, readily available construction methods and materials. This alternative would necessitate contingency plans to ensure that adequate storage capacity exists for collected groundwater, in the event of a significant increase in the estimated flow because of unanticipated infiltration. Administrative requirements associated with Alternative 2 include compliance with NJPDES requirements for discharge of treated groundwater to Peach Island Creek while Alternative 3 will require compliance with standards established for off-site treatment facilities. In particular, the receiving facility must be in compliance with Sections 3004 and 3005 of the Solid Waste Disposal Act, as amended. Any off-site transport of contaminated groundwater must also comply with Department of Transportation regulations.

Since both Alternative 2 and Alternative 3 involve dewatering of the FOU zone which will change the site hydrology, there may be potential impacts to Peach Island Creek and/or the wetlands. Either alternative could be designed in such a manner as to minimize the potential impact to these areas.

All alternatives are implementable from an administrative and technical perspective.

Long-term Effectiveness: This criterion refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. Since this is an interim action, effectiveness need only be maintained for the duration of the interim action, which is expected to be no more than three years after implementation of this interim action. Therefore, this criterion will evaluate long-term effectiveness over a three year period.

Alternative 1 is not effective in either the long term or short term. Both Alternatives 2 and 3 would be effective, once implemented, and should maintain their effectiveness for the expected duration of the interim remedial action. Both Alternatives 2 and 3 would effectively reduce, but not eliminate, migration of contaminants via groundwater beyond the slurry wall boundary until a permanent remedy is in place.

Reduction of Toxicity, Mobility or Volume: This criterion addresses the degree to which a substantial reduction of toxicity, mobility, or volume of contaminants at the site is achieved through treatment. Since none of the Alternatives evaluated for this interim remedy employ treatment of the soils/sludges in the shallow zone, this criterion is not applicable to this interim remedy. Alternatives

2 and 3, however, involve the treatment of contaminated groundwater. Both should therefore reduce the volume of contaminated groundwater in the FOU zone.

The No action Alternative does not involve treatment and does not meet the objective of this criterion.

Cost: This criterion includes evaluating both capital and operation and maintenance costs.

Alternative 1, No Action, has an estimated present worth of $120,000. The primary constituents of this cost are inspection and sampling. The present worth costs of Alternatives 2 and 3 are $5,164,000 and $2,933,000, respectively. The major cost items associated with Alternative 2 and 3 are construction of the slurry wall and groundwater treatment or disposal.

The cost estimates are based on the assumption that approximately 1,000,000 gallons of groundwater will be treated. If the actual volume to be treated exceeds this amount, the cost associated with off-site disposal will increase, and may approach that of on-site treatment.

State Acceptance: This criterion indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.

Community Acceptance: Based on the comments received on the Proposed Plan, the community accepts Alternative 3.

SELECTED REMEDY

The selected interim remedy is Alternative 3: site dewatering through installation of a slurry wall, groundwater collection and off-site disposal. This interim remedy contains the following components:

1. Installation of a slurry wall along the perimeter of the entire 5.9 acre SCP site which will extend from the surface of the site, down into the clay-silt layer located at the lower boundary of the FOU zone (approximately 15 to 20 feet below the surface of the site);

2. Installation of a groundwater collection and extraction system in the FOU zone which will be capable of lowering and maintaining the water table in this zone at the lowest practicable level;

3. Extraction of groundwater from the FOU zone to achieve and continuously maintain the water level in this zone at the lowest practicable level;

4. Transportation of all groundwater extracted from the FOU zone to an appropriate facility (or facilities) located off site;

5. Proper treatment and disposal of all groundwater extracted from the FOU zone at an appropriate facility (or facilities) located off site;

6. Installation of a temporary infiltration barrier across the entire surface of the site which will be capable of minimizing the entry of precipitation into the FOU zone;

7. Operation and maintenance of the groundwater collection and extraction system, and maintenance of the infiltration barrier and maintenance of the slurry wall surrounding the site to ensure continued achievement of the objectives of the interim remedy identified in this decision document;

8. Maintenance of fencing and provision of other site security measure(s), as deemed necessary by EPA, until such time that the final remedy is in place; and

9. Implementation of a program for groundwater and surface water monitoring to measure the presence within and the potential migration of hazardous substances from the FOU zone, until such time that the final remedy is in place.

The goal of this interim remedy is to reduce contaminant migration from the SCP site until a permanent remedy is implemented. The cost estimate for Alternative 3 is as follows:

Capital Cost:	$ 2,557,000	
Annual O & M Cost:	$ 42,000	(for 3 years)
Present Worth:	$ 2,933,000	

Table 12 provides further detail regarding the components of this alternative and the cost estimates.

Alternative 3 best satisfies EPA's evaluation criteria for this interim remedy. While none of the interim remedial alternatives evaluated are fully protective of public health and the environment in and of themselves, once implemented, Alternative 3 is more protective than Alternative 1 and at least as protective as Alternative 2. Because Alternative 3 can be implemented more expeditiously than Alternative 2, it would attain short-term reduction with respect to contaminant migration more quickly. Primarily for this reason, Alternative 3 would provide greater protectiveness for the interim and greater short-term effectiveness than the other alternatives. Furthermore, it should be noted that Alternative 3 is less likely to interfere with future site remediation activities than Alternative 2 . It is also less costly than Alternative 2. With respect to the criterion of reduction of toxicity, mobility or volume through treatment, although the alternatives evaluated do not involve treatment of contaminated soils and sludges, Alternative 3 will reduce the volume of contaminated groundwater above the clay layer to the same extent as Alternative 2, while Alternative 1 offers no reduction due to treatment. Although some members of the community have had some questions and concerns regarding the site, no one expresses opposition to Alternative 3. With respect to all remaining criteria, Alternative 3 ranks equal to or higher than the other alternatives. Therefore, based upon the above considerations, EPA has selected Alternative 3 as the interim remedy for the FOU zone at the site.

STATUTORY DETERMINATIONS

Protection of Human Health and the Environment

This interim remedy (Alternative 3) is part of an overall remedy for the FOU zone which will ultimately protect human health and the environment. This interim remedy will reduce continued migration of hazardous substances out of the FOU zone until a permanent remedy is in place. This remedy is interim in nature and, as such, will not be protective in the long term. Although this interim remedy is not protective in and of itself, it will be consistent with an overall remedy which will attain the statutory requirement for protectiveness.

Compliance with Applicable or Relevant and Appropriate Requirements

Section 121 of CERCLA provides that during interim measures ARARs do not have to be met, as long as these requirements will be achieved upon completion of the permanent remedy. Accordingly, final cleanup levels for specific chemicals in the soil and groundwater at the site do not have to be achieved for this interim action.

This interim remedy will comply with all Federal and State requirements which are applicable or relevant and appropriate to its implementation. In particular, requirements pertaining to any off-site disposal facility will have to be met. In addition, Alternative 3 will comply with, to the extent practicable given the interim nature of this remedy, the Executive Orders on Flood Plain Management, and Wetlands Protection, the Clean Water Act Section 404 General Standards for Permitting Stream Encroachment, and the New Jersey Soil Erosion and Sediment Control Requirements (N.J.A.C. 4:24-1). In addition, Alternative 3 will comply with the regulations of the Hackensack Meadowlands Development Commission.

Cost-Effectiveness

Alternative 3 is cost effective. It is also more cost effective than Alternative 2 in reducing the risk to human health and the environment in the short term by reducing the migration of hazardous substances from the site.

Utilization of Permanent Solutions and Alternative Treatment (or resource recovery) Technologies to the Maximum Extent Practicable

Alternative 3 does not represent a permanent solution with respect to the principal threats posed by the site. However, it is not practicable to use permanent solutions at this time because further studies are desirable before a permanent remedy for the FOU zone is selected. The statutory preference for use of permanent solutions and alternative treatment technologies will be addressed at the time of selection of a permanent remedy for the site.

- Preference for Treatment as a Principal Element

Alternative 3 does not utilize treatment as a principal element, in that the primary source of contamination (i.e., soils and sludges in the FOU zone) are not addressed. However, a limited amount of treatment will be accomplished by extracting contaminated groundwater and treating and disposing of it off site. Given the interim nature of this action, this alternative uses treatment to the maximum extent practicable. This interim action constitutes a measure to reduce contaminant migration from the site and does not constitute the final remedy for the FOU zone. The statutory preference for treatment as a principal element will be fully addressed in the decision document(s) for the final remedy for the FOU zone.

DOCUMENTATION OF SIGNIFICANT CHANGES

There have been no significant changes in the selected interim remedy from the preferred interim remedy described in the Proposed Plan.

04587

TABLE 1

SUMMARY OF CHEMICAL CONCENTRATIONS
IN SHALLOW SOIL (0-2') SAMPLES

CHEMICAL (Concentration Units)	FREQUENCY OF DETECTION	MAXIMUM DETECTED CONCENTRATION	GEOMETRIC MEAN CONCENTRATION
Volatile Organic Compounds (ug/kg)			
Benzene	4/17	53,900	90
Chlorobenzene	4/17	336,000	128
Chloroform	4/17	17,800	44
1,1-Dichloroethane	2/17	64,700	72
1,2-Dichloroethane	4/17	10,200	60
1,1-Dichloroethylene	2/17	182	10
1,2-trans-Dichloroethylene	5/17	241	9
Ethylbenzene	7/17	652,000	384
Methyl ethyl ketone	2/17	8,560	104
Methylene Chloride	11/17	2,390	143
1,1,2,2-Tetrachloroethane	1/17	476	NC
Tetrachloroethylene	12/17	4,290,000	934
Toluene	8/17	3,380,000	739
1,1,1-Trichloroethane	1/17	1,228	NC
1,1,2-Trichloroethane	2/17	1,810	31
Trichlorethylene	12/17	2,060,000	270
m-Xylene	7/17	2,000,000	734
o+p-Xylenes	9/17	1,450,000	825
Semi-Volatile Compounds (ug/kg)			
Acenaphthene (NC)	9/17	2,700	359
Anthracene (NC)	9/17	3,910	392
Benzo(a)anthracene (C)	5/17	4,540	1,040
Benzo(a)pyrene (C)	9/17	9,390	836
Benzo(b)fluoranthene (C)	6/17	17,700	1,990
Benzo(g,h,i)perylene (NC)	6/17	6,950	851
Benzo(k)fluoranthene (C)	1/17	3,790	NC
Bis-(2-ethylhexyl)phthalate	17/17	281,000	33,600
Butyl benzyl phthalate	8/17	48,304	1,540
2-Chloronaphthalene	2/17	122,000	174
Chrysene (C)	11/17	5,500	753
Dibenzo(a,h)anthracene (C)	3/17	2,400	693
1,2-Dichlorobenzene	8/17	47,300	543
2,4-Dichlorophenol	1/17	1,102	NC
2,4-Dimethylphenol	2/17	1,120	188
Diethylphthalate	1/17	4,994	NC
Di-n-butyl phthalate	13/17	71,000	3,080
Di-n-octyl phthalate	6/17	9,050	1,570
Fluoranthene (NC)	16/17	15,300	1,850
Fluorene (NC)	8/17	6,909	428
Indeno-(1,2,3-c,d)pyrene (C)	6/17	12,100	1,010
Naphthalene (NC)	16/17	102,000	2,020
Nitrobenzene	1/17	78,299	NC
N-Nitrosodiphenylamine	3/17	2,980	245
Phenanthrene (NC)	13/17	15,300	2,120
Phenol	4/17	58,200	145
Pyrene (NC)	15/17	12,700	1,800
1,2,4-Trichlorobenzene	2/17	1,228	152

TABLE 1 (Continued)

SUMMARY OF CHEMICAL CONCENTRATIONS
IN SHALLOW SOIL (0-2') SAMPLES

CHEMICAL (Concentration Units)	FREQUENCY OF DETECTION	MAXIMUM DETECTED CONCENTRATION	GEOMETRIC MEAN CONCENTRATION
Pesticides/PCBs (ug/kg)			
Aldrin	3/17	57,000	44
Dieldrin	5/17	57,000	170
PCBs:			
Aroclor 1242	11/17	15,000,000	2,680
Aroclor 1248	4/17	23,000	345
Aroclor 1260	2/17	48,000	351
Aroclor 1254	3/17	12,000	579
Inorganic Chemicals (mg/kg)			
Antimony	3/17	16	3.8
Arsenic	14/17	60	8.1
Beryllium	17/17	26	0.56
Cadmium	17/17	95.1	6.1
Chromium	17/17	721	78.5
Copper	17/17	71,600	2,320
Cyanide	16/17	5.02	1.85
Lead	17/17	2,750	490
Mercury	17/17	21.3	1.4
Nickel	15/17	39	12.2
Selenium	5/17	4.9	0.49
Silver	7/17	19	1.1
Zinc	17/17	4,170	398

ND = Not detected.
NC = Not calculated since chemical was detected in only one sample.

(C) = Carcinogenic PAH.
(NC) = Noncarcinogenic PAHs.

TABLE 2

SUMMARY OF CHEMICAL CONCENTRATIONS
IN MEDIUM DEPTH (5-6') SOIL

Chemical (Concentration Units)	Frequency of Detection	Maximum Detected Concentration	Geometric Mean Concentration
Volatile Organic Compounds (ug/kg)			
benzene	8/17	52,300	621
chlorobenzene	7/17	258,000	887
chloroform	2/17	379,000	257
1,1 - dichloroethane	3/17	179,000	461
1,2 - dichloroethane	4/17	290,000	413
1,2 - trans-dichloroethylene	5/17	512,000	288
ethylbenzene	15/17	529,000	4,330
methyl ethyl ketone	5/17	795,000	1,300
methlyene chloride	8/17	14,900	565
1,1,2,2 - tetrachloroethane	1/17	703	NC
tetrachloroethylene	12/17	1,690,000	2,760
toluene	16/17	2,270,000	15,700
1,1,1 - trichloroethane	3/17	1,770,000	473
1,1,2, - trichloroethane	1/17	15,700	NC
trichlorethylene	8/17	1,670,000	856
vinyl chloride	1/17	28.9	NC
m-xylene	16/17	1,580,000	12,200
o+p - xylenes	16/17	710,000	10,500
Semi-Volatile Compounds (ug/kg)			
acenaphthene (NC)	8/17	21,200	443
acenaphthylene (NC)	1/17	21,000	NC
anthracene (NC)	7/17	2,950	474
benzidine	1/17	244,000	NC
benzo(a)anthracene (C)	5/17	84,200	1,200
benzo(a)pyrene (C)	7/17	108,000	649
benzo(b)fluoroanthene (C)	6/17	164,000	1,730
benzo(g,h,i)perylene (NC)	5/17	73,300	671
bis (2-ethylhexyl)phthlate	14/17	381,000	14,400
butylbenzylphthalate	6/17	73,600	1,990
2 - chloronaphthalene	4/17	18,200	282
chrysene (C)	7/17	106,000	633
1,2 - dichlorobenzene	6/17	385,000	499
diethyl phthalate	1/17	28,500	NC
2,4 - dimethylphenol	3/17	10,800	382
di-n-butyl phthalate	6/17	98,200	1,750
di-n-octyl phthalate	5/17	19,500	1,190
fluoranthene (NC)	13/17	176,000	1,460
fluorene (NC)	9/17	94,100	549

TABLE 2 (Continued)

SUMMARY OF CHEMICAL CONCENTRATIONS
IN MEDIUM DEPTH (5-6') SOIL

Chemical (Concentration Units)	Frequency of Detection	Maximum Detected Concentration	Geometric Mean Concentration
Semi-Volatile Compounds (ug/kg) (continued)			
indeno(1,2,3-c,d)pyrene (C)	4/16	86,900	697
naphthalene (NC)	14/17	480,000	1,690
nitrobenzene	1/17	1,350,000	NC
N-nitrosodiphenylamine	1/17	157	NC
phenanthrene (NC)	9/17	268,000	1,960
phenol	4/17	790,000	405
pyrene (NC)	12/17	118,000	1,130
1,2,4 - trichlorobenzene	2/17	4,930	222
Pesticides/PCBs (ug/kg)			
aldrin	1/14	1,200	NC
dieldrin	3/13	940	23
methoxychlor	1/17	150,000	NC
PCBs:			
Aroclor 1242	12/17	350,000	1,330
Aroclor 1248	2/17	9,700	84
Aroclor 1254	3/15	3,500	185
Aroclor 1260	2/17	10,000	179
Inorganic Chemicals (mg/kg)			
antimony	4/17	38	4.5
arsenic	15/17	62	7.8
beryllium	17/17	1.3	0.49
cadmium	16/17	26	3.9
chromium	17/17	542	57
copper	17/17	8,600	431
cyanide	9/17	0.032	0.001
lead	17/17	2,810	271
mercury	16/17	13.6	0.75
nickel	17/17	116	29
selenium	3/17	2.1	0.45
silver	1/17	40	NC
zinc	17/17	1,870	338

ND - Not detected.
NC - Not calculated since chemical was detected in only one sample.

(C) - Carcinogenic PAH.
(NC) - Noncarcinogenic PAH.

DECLARATION STATEMENT

RECORD OF DECISION

SCIENTIFIC CHEMICAL PROCESSING SITE

SITE NAME AND LOCATION

Scientific Chemical Processing Site
216 Paterson Plank Road
Carlstadt, Bergen County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedial action for the Scientific Chemical Processing (SCP) site located at 216 Paterson Plank Road in Carlstadt, New Jersey. This interim remedy was chosen by EPA in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Contingency Plan. This decision document summarizes the factual and legal bases for selecting the interim remedy for the site. The attached index identifies the items that comprise the administrative record for the site upon which this decision is based.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The soil and groundwater above the clay silt layer which exists across the entire SCP site (i.e., the first operable unit zone) constitute the most highly contaminated materials at the site. Numerous hazardous substances and pollutants and contaminants are present in this zone, many of which have migrated out of this zone into the underlying aquifers and Peach Island Creek which adjoins the site. The primary objective of the interim remedy identified in this decision document is to reduce the migration of such hazardous substances into the groundwater and surface water until a permanent remedy for the site is selected and implemented.

TABLE 3

SUMMARY OF CHEMICAL CONCENTRATION IN DEEP SOIL SAMPLES

Chemicals (Concentration Units)	Frequency Of Detection	Maximum Detected Concentration	Geometric Mean Concentration
Volatile Organic Compounds (ug/kg)			
Benzene	3/17	1,010	43
Chlorobenzene	2/17	115	21
Chloroform	2/17	10,300	22
1,1-Dichloroethane	2/17	234	21
1,2-Dichloroethane	4/17	6,500	36
1,2-trans-Dichloroethylene	6/17	12,200	37
Ethylbenzene	7/17	45,600	106
Methyl ethyl ketone	10/17	31,500	360
Methylene chloride	8/17	7,260	77
1,1,2,2-Tetrachloroethane	1/17	32.4	NC
1,1,1-Trichloroethane	3/17	57,600	36
m-Xylene	10/17	135,000	237
o+p-Xylenes	8/17	87,900	201
Styrene	1/17	212	NC
* Tetrachloroethylene	7/17	917,000	113
Toluene	14/17	216,000	290
Trichloroethylene	7/17	363,000	45
Vinyl chloride	1/17	11,774	NC
Semi-Volatile Compounds (ug/kg)			
Acenaphthene (NC)	1/17	100	NC
Anthracene (NC)	3/17	181	52
Benzo(a)anthracene (C)	1/17	564	NC
Benzo(a)pyrene (C)	10/17	4,740	261
Benzo(b)fluoranthene (C)	1/17	576	NC
Benzo(g,h,i)perylene (NC)	1/17	227	NC
Bis(2-ethylhexyl)phthalate	13/17	3,360	2,140
Butylbenzylphthalate	3/17	4,690	380
Chrysene (C)	4/17	1,340	83
1,2-Dichlorobenzene	6/17	10,800	108
Di-n-butylphthalate	3/17	2,440	388
Di-n-octylphthalate	3/17	5,610	379
Fluoranthene (NC)	7/17	23,201	125
Fluorene (NC)	2/17	186	52
Indeno(1,2,3-cd)pyrene (C)	1/17	213	NC
Isophorone	3/17	725	83
Naphthalene (NC)	10/17	2,270	168
Phenanthrene (NC)	5/17	3,250	196
Phenol	2/17	14,400	86
Pyrene (NC)	8/17	1,840	108
Pesticides/PCBs (ug/kg)			
Dieldrin	3/17	210	4.1
Aroclor 1242	11/17	5,400	121
Aroclor 1248	3/17	2,600	22
Aroclor 1254	3/17	2,200	38
Aroclor 1260	3/17	1,000	39
Inorganic Chemicals (mg/kg)			
Antimony	2/17	29	3.6
Arsenic	10/17	18	2.8
Beryllium	17/17	0.74	0.48
Cadmium	10/17	132	0.72
Chromium	17/17	56	20.2
Copper	17/17	11,900	66.7
Lead	15/17	916	28.7
Mercury	10/17	13.6	0.16
Nickel	17/17	44	14.1
Selenium	2/17	1.3	0.28
Silver	2/17	1.2	0.55
Zinc	17/17	4,400	92

NC = Not calculated because chemical was detected in only one sample.
ND = Not detected.

(C) = Carcinogenic PAH
(NC) = Noncarcinogenic PAH

TABLE 4

SUMMARY OF CHEMICAL CONCENTRATIONS DETECTED IN VERY DEEP SOIL SAMPLES

Chemical (Concentration Units)	Frequency of Detection	Maximum Detected Concentration (ug/kg)	Geometric Mean Concentration (ug/kg)
Volatile Organic Compounds (ug/kg)			
chlorobenzene	2/16	31,523	199
chloroform	6/16	333,000	217
1,1 - dichloroethane	1/16	698	NC
1,2 - dichloroethane	3/16	59,900	206
1,2 - trans-dichloroethylene	2/16	13,820	88
ethyl benzene	2/16	69,606	221
methyl ethyl ketone	8/16	69,000	1,180
methlyene chloride	15/16	99,100	2,250
tetrachloroethylene	14/16	536,013	2,220
toluene	13/16	469,276	1,120
1,1,1 - trichloroethane	2/16	200,449	348
trichlorethylene	16/16	1,071,522	6,630
m-xylene	9/16	191,660	523
o+p - xylenes	5/16	117,053	319
Semi-Volatile Compounds (ug/kg)			
2-chlorophenol	1/7	238	NC
1,2-dichlorobenzene	2/7	465	79
isophorone	1/7	151	59
nitrobenzene	5/7	718	154
phenol	1/7	434	NC
Pesticides/PCBs (ug/kg)			
PCBs: Aroclor 1242	3/7	370	33

TABLE 4 (Continued)

SUMMARY OF CHEMICAL CONCENTRATIONS
DETECTED IN VERY DEEP SOIL SAMPLES

Chemical (Concentration Units)	Frequency of Detection	Maximum Detected Concentration (ug/kg)	Geometric Mean Concentration (ug/kg)
Inorganic Compounds (mg/kg)			
arsenic	5/7	5.5	1.7
beryllium	7/7	1.2	1.0
cadmium	1/7	0.28	0.15
chromium	7/7	33	28
copper	7/7	39	30
lead	6/7	17	7.2
nickel	7/7	37	3.0
zinc	7/7	87	71

NC = Not calculated since chemical was detected in only one sample.

ND = Not detected.

TABLE 5

TANK SLUDGE SAMPLING DATA
SCP/CARLSTADT, NEW JERSEY

Constituent	Characteristics and Concentrations
Specific Gravity	1.37
Total Solids	64.76%
Water Content	4%
Flash Point	> 212°F
Ash Content	23.62%
Heating Value	6,940 BTU/lb
Aluminum, as Al	29.30 mg/L *
Arsenic, as As	7.07 mg/L
Barium, as Ba	2620 mg/L
Cadmium, as Cd	98.7 mg/l
Chromium, as Cr	12,300 mg/L
Copper, as Cu	2,830 mg/L
Lead, as Pb	50,700 mg/L
Mercury, as Hg	1,560 mg/L
Nickel, as Ni	32.3 mg/L
Selenium, as Se	< 0.020 mg/L
Silver, as Ag	2.90 mg/L
Zinc, as Zn	1,410 mg/L
Beryllium, as Be	4.51 mg/l
Potassium, as K	291 mg/L
Total Sulfur	4,930 mg/L
Total Chlorides, as Cl	109,000 mg/L
Total Fluorides, as F	879 mg/L
Total Cyanides	<10 mg/L
Oil and Grease	23.6%
PCB, Aroclor 1242	32,300.00 mg/L

Note: Concentrations based on a single sample taken by USEPA and analyzed by Chemical Waste Management on 9 May 1986

Source: USEPA Region II SCP/Carlstadt File

* mg/L; ppm

TABLE 6

CONCENTRATIONS OF CHEMICALS DETECTED IN THE WATER TABLE AQUIFER AT THE SCP SITE

(UNFILTERED SAMPLES)

Chemical	Frequency of Detection (a)	Concentration (ug/l) Geometric Mean (b)	Concentration (ug/l) Maximum Detected Value (b)
Volatile Compounds			
Benzene	10/14	318	7,270
Chlorobenzene	3/14	9.8	4,020
Chloroethane	1/14	NC	2,420
Chloroform	4/14	38.1	614,000
1,1-Dichloroethane	8/14	86.5	11,700
1,2-Dichloroethane	4/14	33.9	473,000
1,1-Dichloroethylene	1/14	NC	32
1,2-trans-Dichloroethylene	12/14	2,270	64,700
Ethylbenzene	6/14	35.9	3,900
Methylene Chloride	10/14	522	200,000
Methyl ethyl ketone	5/14	168	2,000,000
1,1,2,2-Tetrachloroethane	4/14	17.0	7,350
Tetrachloroethylene	3/14	16.2	24,500
Toluene	14/14	10,500	90,900
1,1,1-Trichloroethane	7/14	58.8	81,200
Trichloroethylene	8/14	365	161,000
Vinyl Chloride	9/14	106	7,290
m-Xylene	6/14	49.2	20,400
o + p-Xylenes	8/14	123	15,200
Semi-Volatile Compounds			
Total CPAHs (c)	2/14	6.8	379.5
Total NCPAHs (d)	13/14	30.7	2706.9
bis(2-Chloroethyl)ether	2/14	11.1	1,390
bis(2-Ethyl hexyl)phthalate	5/14	17.1	654
Butyl benzyl phthalate	1/14	NC	10.4
2-Chloronaphthalene	1/14	NC	18.9
2-Chlorophenol	2/14	5.9	17.8
1,2-Dichlorobenzene	12/14	34.8	192
2,4-Dichlorophenol	2/14	9.1	463
Diethyl phthalate	2/14	7.4	416
2,4-Dimethyl phenol	11/14	53.9	1,090
Dimethyl phthalate	1/14	NC	316
Di-n-butyl phthalate	2/14	7.2	318
Isophorone	5/14	26.3	8,450
Nitrobenzene	4/14	65.0	57,900
2-Nitrophenol	1/14	NC	4.73
Phenol	14/14	510	17,100
Pesticides/PCBs			
Beta-BHC	1/14	NC	0.56
Total DDT and compounds	3/14	0.09	1.7
Endrin aldehyde	2/14	0.09	15.0
Endosulfan I	1/14	NC	0.25
Endrin	1/14	NC	0.65
Total PCBs (e)	6/14	1.9	17,000
Inorganics			
Arsenic	10/14	30.7	3,100
Beryllium	4/14	1.2	4.3
Cadmium	4/14	3.5	16
Chromium	7/14	26.3	450
Copper	14/14	341	1,580
Cyanide	11/14	0.07	4.52
Lead	5/14	14.3	1,500
Mercury	10/14	0.49	4.4
Nickel	12/14	55.5	180
Zinc	14/14	92.4	2,970

(a) Frequency of detection based on 14 samples, two from each sampling station.

(b) Geometric means and maximums were calculated after the geometric mean of the two samples from each station were calculated. The listed maximum is, however, the maximum value detected in any sample.

(c) CPAHs = Carcinogenic PAHs. Those detected in groundwater were: benzo(a)pyrene, chrysene, fluoranthene and fluorene.

(d) NCPAHs = Noncarcinogenic PAHs. Those detected in groundwater were: acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene and pyrene.

(e) Includes all Aroclors detected at site (1242).

NC = Not calculated since chemical was detected in only one sample.

TABLE 7

CONCENTRATIONS OF CHEMICALS DETECTED IN THE TILL AQUIFER AT THE SCP SITE

(UNFILTERED SAMPLES)

Chemical	Frequency of Detection (a)	Concentration (ug/l) Geometric Mean (b)	Concentration (ug/l) Maximum Detected Value (b)
Volatile Compounds			
Chlorobenzene	2/6	4.6	39.7
Chloroform	5/6	324	28,600
1,1-Dichloroethane	1/6	NC	27
1,2-Dichloroethane	5/6	144	9,230
1,1-Dichloroethylene	3/6	17.3	313
1,2-trans-Dichloroethylene	3/6	11.6	190
Methylene Chloride	6/6	101	1210
Tetrachloroethylene	4/6	26.7	996
Toluene	2/6	3.1	10.1
1,1,1-Trichloroethane	4/6	29.5	417
Trichloroethylene	6/6	410	16,400
Vinyl Chloride	1/6	NC	54.3
Semi-Volatile Compounds			
1,2-Dichlorobenzene	2/6	5.4	7.46
Nitrobenzene	3/6	7.2	23.3
Phenol	1/6	NC	2.16
Pesticides/PCBs			
Total PCBs (c)	1/6	NC	1.8
Inorganics			
Copper	1/6	NC	19
Zinc	5/6	29.5	57

(a) Frequency of detection based on 6 samples, two from each of the three sampling stations.
(b) Geometric means and maximums were calculated after the geometric mean of the two samples from each station were calculated. The listed maximum is, however, the maximum value detected in any sample.
(c) Includes all Aroclors detected at site.

NC = Not calculated because chemical was detected in only one sample.

TABLE 8

CONCENTRATIONS OF CHEMICALS DETECTED IN THE BEDROCK AQUIFER AT THE SCP SITE

(UNFILTERED SAMPLES)

Chemical	Frequency of Detection (a)	Concentration (ug/l) Geometric Mean	Maximum Detected Value
Volatile Compounds			
Chloroform	2/2	670	830
1,2-Dichloroethane	2/2	420	460
1,1-Dichloroethylene	1/2	NC	2
1,2-trans-Dichloroethylene	1/2	NC	3
Methylene chloride	1/2	NC	21
Tetrachloroethylene	1/2	NC	2
Toluene	1/2	NC	15
1,1,1-Trichloroethane	1/2	NC	8
Trichloroethylene	2/2	240	310
Vinyl chloride	2/2	28	56
Inorganics			
Aluminum	1/1	NC	863
Barium	1/1	NC	142
Calcium	1/1	NC	209,000
Chromium	1/1	NC	27.6
Copper	1/1	NC	52.3
Lead	1/1	NC	2.6
Magnesium	1/1	NC	1,380
Potassium	1/1	NC	3,100
Sodium	1/1	NC	60,500
Vanadium	1/1	NC	7
Zinc	1/1	NC	7.8

(a) Frequency of detection based on two samples for organics and one sample for inorganics. The samples were taken from a single monitoring well on two separate dates.

NC = Not calculated since chemical was detected in only one sample.

04599

TABLE 9

CHEMICAL CONCENTRATIONS IN SURFACE WATER SAMPLES AT PEACH ISLAND CREEK

(All concentrations in ug/liter)

Chemical	100 Feet Upstream (Loc. 4)	Adjacent to site (Loc. 3)	100 Feet Downstream (Loc. 2)	Confluence with Berry's Creek (Loc. 1)
Volatile Organic Compounds				
Chlorobenzene	ND	8.34	12.20	ND
Chloroform	ND	3.58	3.56	ND
1,2-trans-Dichloroethylene	ND	35.20	33.30	3.91
Methyl ethyl ketone	75	45.40	49.20	ND
Methylene chloride	4.63	6.12	12.90	14.90
1,1,1-Trichloroethane	ND	6.32	5.54	ND
Toluene	ND	20.60	48.10	ND
Trichlorethylene	ND	3.83	ND	ND
m-Xylene	ND	ND	10.70	ND
o+p-Xylenes	ND	ND	10.00	ND
Inorganic Chemicals				
Chromium	56	ND	28	ND
Copper	100	29	27	12
Mercury	4.8	0.96	1.1	2.1
Nickel	57	33	27	ND
Zinc	370	160	150	87

ND = Not detected.

TABLE 10

SUMMARY OF CHEMICAL CONCENTRATIONS
IN SHALLOW SEDIMENTS (0-6 INCHES)

	Concentration			
Chemical	100 Feet Upstream (Loc. 4)	Adjacent to Site (Loc. 3)	100 Feet Downstream of Site (Loc. 2)	Confluence with Berry's Creek (Loc. 1)
Volatile Organic Compounds (ug/kg)				
Benzene	ND	ND	ND	82.5
Chlorobenzene	3,990	ND	17,100	200
Chloroform	ND	ND	3,690	ND
Ethylbenzene	4,610	39,000	35,100	ND
Methyl ethyl ketone	ND	ND	18,300	65.2
Methylene chloride	ND	ND	ND	42.3
m-Xylene	13,300	1,060,000	72,000	168
o+p-Xylenes	11,000	647,000	74,200	467
Tetrachloroethylene	ND	953,000	ND	ND
Toluene	41,500	2,970,000	322,000	ND
1,1,1-Trichloroethane	ND	222,000	ND	ND
Trichlorethylene	ND	9,950,000	ND	ND
Pesticides/PCBs (ug/kg)				
Dieldrin	ND	11,000	ND	ND
PCBs:				
Arochlor 1242	21,000	55,000	35,000	ND
Arochlor 1248	ND	ND	ND	19,000
Arochlor 1254	ND	ND	ND	5,200
Arochlor 1260	10,000	ND	6,000	ND
Semi-Volatiles (ug/kg)				
1,2,4-Trichlorobenzene	525	ND	ND	ND
1,2-Dichlorobenzene	1,850	3,670	424	ND
2-Chloronaphthalene	ND	ND	115	ND
Acenaphthene	ND	ND	166	ND
Benzo(a)pyrene	ND	ND	148	ND
Bis(2-ethylhexyl)phthlate	108,000	32,600	32,000	2,920
Butyl benzyl phthalate	ND	ND	736	ND
Chrysene	ND	ND	332	ND
Di-n-octylphthalate	ND	ND	600	ND

TABLE 10 (Continued)

SUMMARY OF CHEMICAL CONCENTRATIONS
IN SHALLOW SEDIMENTS (0-6 INCHES)

Chemical	Concentration			
	100 Feet Upstream (Loc. 4)	Adjacent to Site (Loc. 3)	100 Feet Downstream of Site (Loc. 2)	Confluence with Berry's Creek (Loc. 1)
Semi-Volatiles (ug/kg) (Cont'd)				
Di-n-butylphthalate	2,350	ND	ND	ND
Fluoranthene	928	ND	374	ND
Fluorene	536	ND	202	ND
Naphthalene	1,330	816	1,230	ND
Phenanthrene	1,820	ND	712	ND
Pyrene	916	ND	339	ND
2,4-Dimethylphenol	1,360	ND	ND	ND
Phenol	24,900	10,200	ND	ND
Inorganics (mg/kg)				
Arsenic	37	ND	ND	34
Beryllium	2.4	1	0.39	0.7
Cadmium	84	43	12	32
Chromium	819	345	156	1,060
Copper	9,510	2,000	1,240	861
Cyanide, total	0.12	0.21	0.001	0.005
Lead	320	520	340	360
Mercury	41	25	0.34	139
Nickel	467	110	96	100
Selenium	ND	ND	ND	0.89
Silver	2.4	2.7	ND	8.6
Thallium	1.0	ND	ND	1.1
Zinc	3,110	2,320	411	2,880

ND = Not detected.

TABLE 11

SUMMARY OF CHEMICALS CONCENTRATIONS IN SAMPLES OF DEEP SEDIMENTS

Chemical	100 Feet Upstream (Location 4)	Adjacent to Site (Location 3)	100 Feet Downstream of Site (Location 2)	Confluence With Berry's Creek (Location 1)
	Concentration			
VOLATILE ORGANIC COMPOUNDS (ug/kg)				
1,1,1-Trichloroethane	ND	75,500	ND	ND
1,2-Dichloroethane	1,960	ND	ND	ND
1,2-trans-Dichloroethylene	1,160	ND	ND	ND
Benzene	1,990	ND	5,785	33.4
Chlorobenzene	4,930	ND	ND	47.3
Chloroethane	ND	ND	2,127	ND
Chloroform	3,790	ND	ND	ND
Ethylbenzene	7,420	174,000	ND	29.7
Methyl ethyl ketone	31,900	ND	ND	ND
Methylene chloride	3,690	ND	ND	ND
Tetrachloroethylene	ND	304,000	ND	ND
Toluene	74,500	1,700,000	726	ND
Trichloroethylene	1,890	3,260,000	ND	ND
m-Xylene	17,200	486,000	5,796	93.8
o+p-Xylenes	16,000	348,000	9,481	141
BASE NEUTRALS (ug/kg)				
1,2,4-Trichlorobenzene	177	2,330	ND	ND
1,2-Dichlorobenzene	445	261,000	852	ND
Bis(2-ethylhexyl)phthalate	32,600	240,000	95,651	5,700
Butyl benzyl phthalate	ND	9,700	ND	ND
Chrysene	ND	ND	1,010	ND
Dibenzo(a,h)anthracene	ND	ND	870	ND
Di-n-butyl phthalate	884	24,800	2,791	ND
Di-n-octyl phthalate	ND	12,200	938	ND
Fluoranthene	381	ND	1,465	534
Naphthalene	379	20,300	1,014	ND
Phenanthrene	556	ND	2,569	ND
Phenol	6,560	44,700	ND	ND
Pyrene	343	ND	1,254	ND
PESTICIDES/PCBs				
PCBs:				
Aroclor 1242	8,880	770,000	21,675	ND
Aroclor 1248	ND	ND	ND	42,000
Aroclor 1254	ND	ND	ND	5,500
Aroclor 1260	2,800	ND	11,099	ND
INORGANICS (mg/kg)				
Arsenic	15	22	7.4	31
Beryllium	1.4	2	0.62	0.63
Cadmium	29	74	30	28
Chromium	257	504	258	1,170
Copper	2,230	2,590	1,213	835
Lead	96	230	232	370
Cyanides, total	0.02	0.01	0.014	0.002
Mercury	18	41	1.93	1,390
Nickel	203	413	228	140
Silver	ND	ND	ND	7.6
Thallium	ND	1.1	ND	1.2
Zinc	1,060	2,540	945	3,680

TABLE 12
COST ESTIMATE - INTERIM REMEDY
ALTERNATIVE 2 : ON-SITE TREATMENT

Conceptual Items	Cost Estimate in Thousands
Mobilization/demobilization	150,000
Fencing: 2,400 lf x $30/lf (incl. resetting once)	72,000
Perimeter road: 3'H x 15'W x 2,400'L = 4,000cy x $15/cy	60,000
Steel sheetpiling along creek: 600'L x 20'D x $20/sf	240,000
S/B slurry wall w/ membrane: 36,000 sf x $16/sf	576,000
Respread excavated material: incl. 25% vol. inc.- 5,000 cy x $2/cy	10,000
Foam for VOC control: 5,000 cy x $30/cy	150,000
Clearing: 6 acres x $3,000/acre	18,000
Grading: 29,000 sy x $2/sy	58,000
Membrane: 60 mil HDPE - 257,000 sf x $1/sy	257,000
Perimeter erosion control, runoff diversion	40,000
Dewatering (from existing wells into holding tank)	130,000
Treatment: 1,000,000 gal treated on-site via GW-6[1]	1,926,000
Site security: estimated at 12,000 man-hours x $6/hr[2]	72,000
Total Construction Cost	$3,759,000
Eng'g. & Constr. Oversight[3]	827,000
Monitoring (quarterly, 3 yrs)[4]	109,000
Subtotal	$4,695,000
Contingency @ approx. 10%	469,000
TOTAL COST	$5,164,000

---

[1] GW-6 includes chemical precipitation, steam stripping and UV oxidation. Capital cost estimate = $1,706,000; O & M cost estimate = $220,000 (for an 8 month operating period).

[2] Assumes 6-moth construction duration.

[3] Including design, preparation of specifications and bid packages, meetings, contractor selection and negotiation.

[4] Assumes a 3-year period before permanent remedy is implemented, and includes 12 rounds of sampling the three on-site till wells and the on-site bedrock well, analyses for VOCs and PCBs, and water level readings of all on-site wells and piezometers. Cost shown is the present worth value of $40,000 per year for 3 years using a 5% interest rate.

TABLE 13
COST ESTIMATE - INTERIM REMEDY
ALTERNATIVE 3: OFF-SITE DISPOSAL

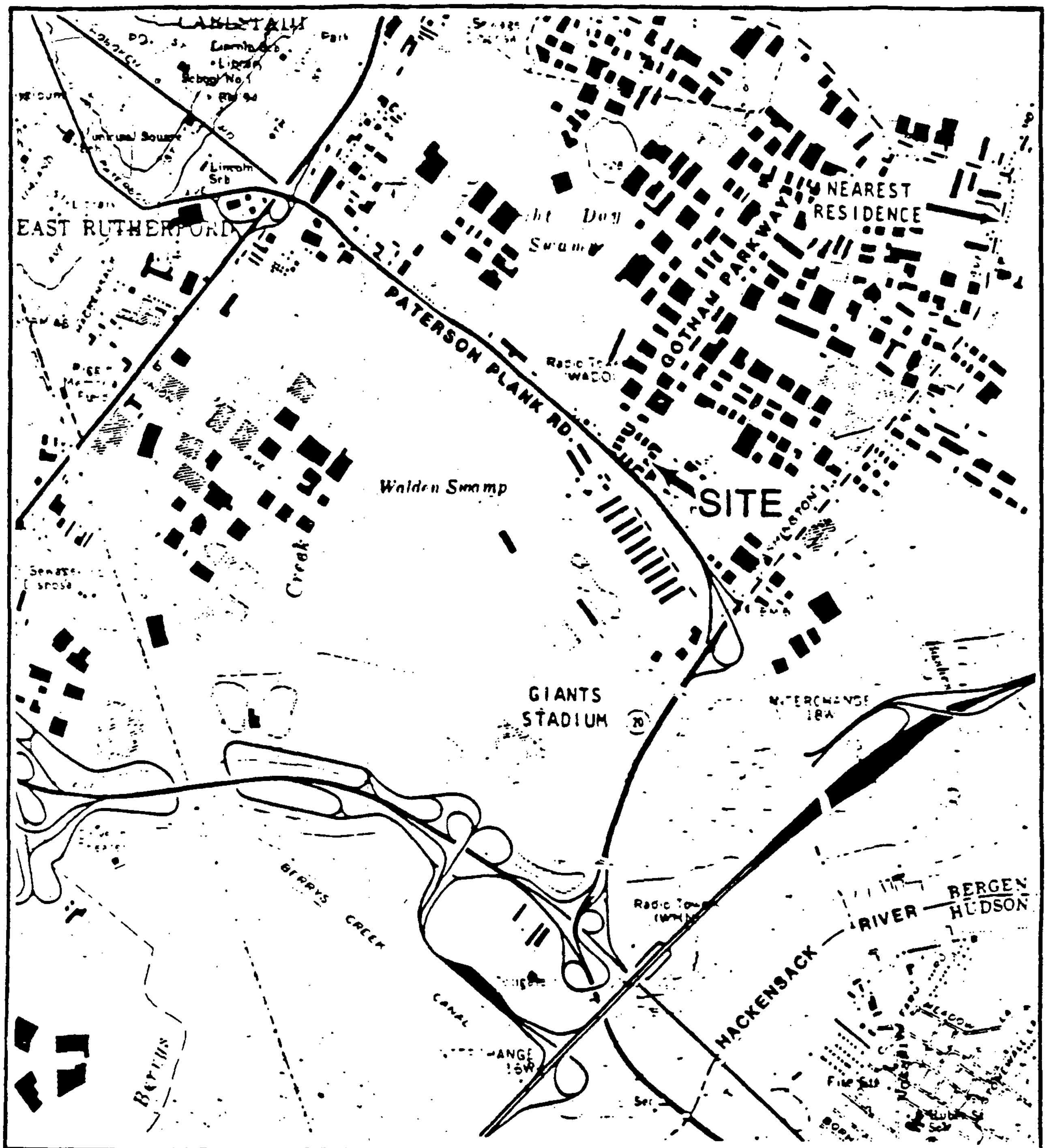
Conceptual Items	Cost Estimate in Thousands
Mobilization/demobilization	$150,000
Fencing: 2,400 lf x $30/lf (incl. resetting once)	72,000
Perimeter road: 3'H x 15'W x 2,400'L = 4,000 cy x $15/cy	60,000
Steel sheetpiling along creek: 600'L x 20'D x $20/sf	240,000
S/B slurry wall w/ membrane: 36,000 sf x $16/sf	576,000
Respread excavated material: incl. 25% vol. inc.- 5,000 cy x $2/cy	10,000
Foam for VOC control: 5,000 cy x $30/cy	150,000
Clearing: 6 acres x $3,000/acre	18,000
Grading: 29,000 sy x $2/sy	58,000
Membrane: 60 mil HDPE - 257,000 sf x $1/sf	257,000
Perimeter erosion control, runoff diversion	40,000
Dewatering (from existing wells into holding tank)	130,000
Loading: 2 hrs/truck x 200 trucks x $60/hr	24,000
Transportation: 200 trucks x $500/truck	110,000
Treatment: 1,000,000 gal x $0.13/gal (DuPont)[1]	130,000
Site security: estimated at 12,000 man-hours x $6/hr[2]	72,000
Total Construction Cost	$2,097,000
Eng'g & Constr. Oversight[3]	460,000
Monitoring(quarterly, 3 yrs)[4]	109,000
Subtotal	$2,666,000
Contingency @approx. 10%	267,000
TOTAL COST	$2,933,000

[1] On a preliminary basis, Du Pont has indicated that the FOU water would be acceptable.

[2] Assumes 6-month construction duration.

[3] Including design, preparation of specifications and bid packages, meetings, contractor selection and negotiation.

[4] Assumes a 3-year period before permanent remedy is implemented, and includes 12 rounds of sampling the three on-site till wells and the on-site bedrock well, analyses for VOCs and PCBs, and water level readings of all on-site wells and piezometers. Cost shown is the present worth value of $40,000 per year for 3 years using a 5% interest rate.



SITE LOCATION MAP

SCP SITE
CARLSTADT, NEW JERSEY

0 2000 4000 FEET

N

REFERENCE:
U.S.G.S. 7.5' QUADRANGLE:
WEEHAWKEN, N.J.,N.Y., 1967,
PHOTO REVISED 1981

DAMES & MOORE

FIGURE 1

04606

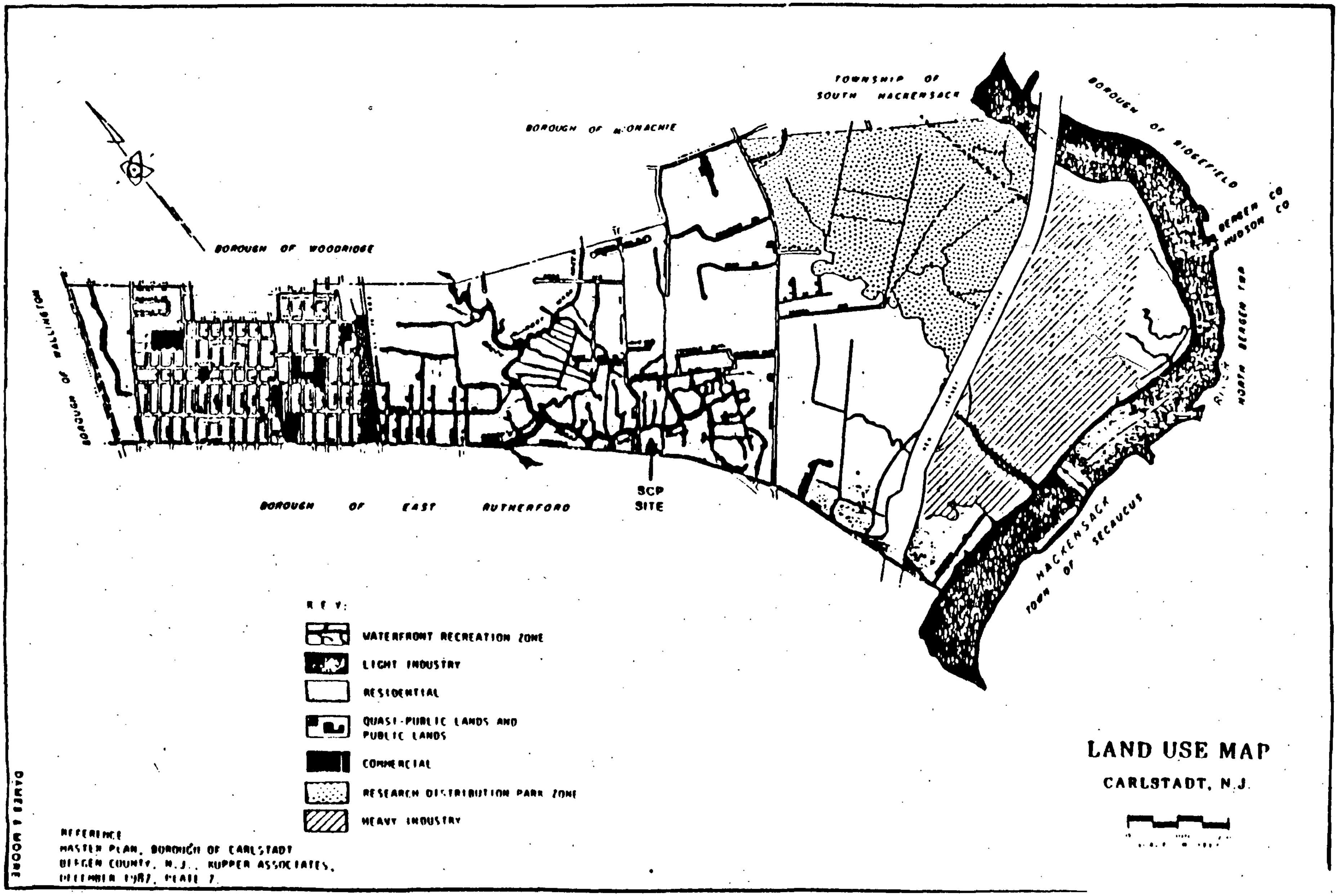
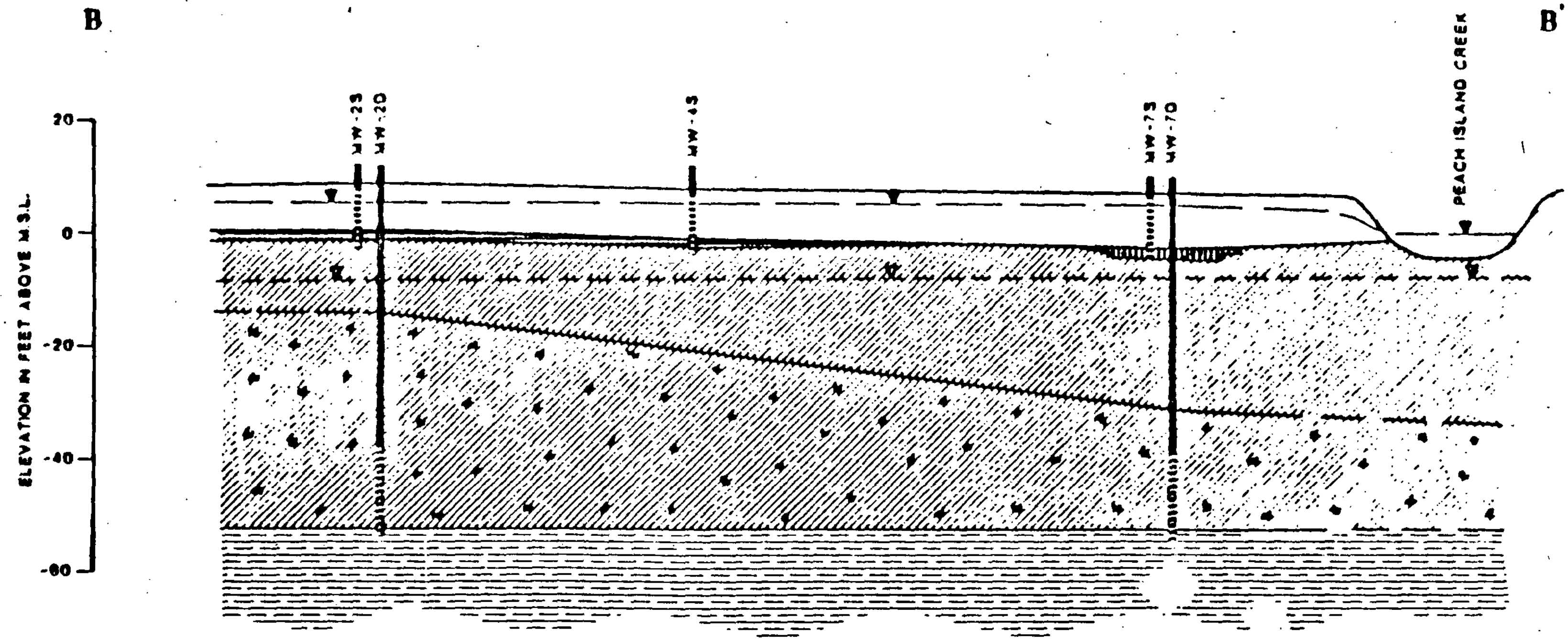


Figure 2

04607



KEY:

MISCELLANEOUS FILL

PEAT

GRAY SILTY FINE SAND

GRAY & BROWN CLAYEY SILT & CLAY (LACUSTRINE)

REDDISH BROWN MIXTURE OF CLAY, SILT, SAND & GRAVEL (GLACIAL TILL)

REDDISH BROWN BRUNSWICK SHALE

SCREENED INTERVAL

WATER TABLE SURFACE

POTENTIOMETRIC SURFACE

NOTE: WATER LEVELS MEASURED ON AUGUST 6, 1987

NOTE:
THE SUBSURFACE SECTION SHOWN REPRESENTS OUR EVALUATION OF THE MOST PROBABLE CONDITIONS, BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. SOME VARIATIONS FROM THESE CONDITIONS MUST BE EXPECTED

CROSS-SECTION B-B'

SCP SITE
CARLSTADT, NEW JERSEY

0 50 100
HORIZONTAL SCALE IN FEET
12.5 X VERTICAL EXAGGERATION

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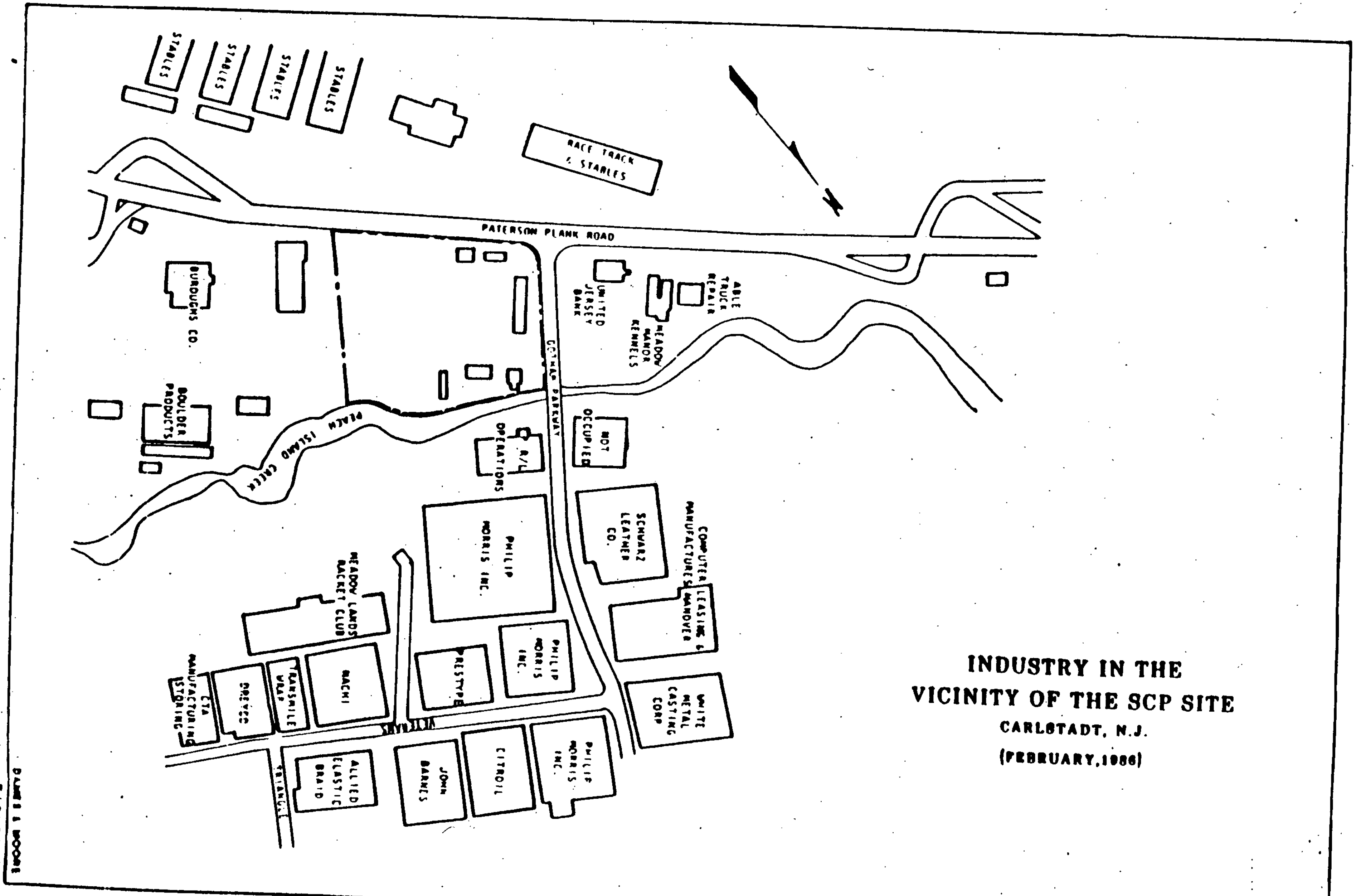
Figure 3

04608



INDUSTRY IN THE VICINITY OF THE SCP SITE

CARLSTADT, N.J.

(FEBRUARY,1986)

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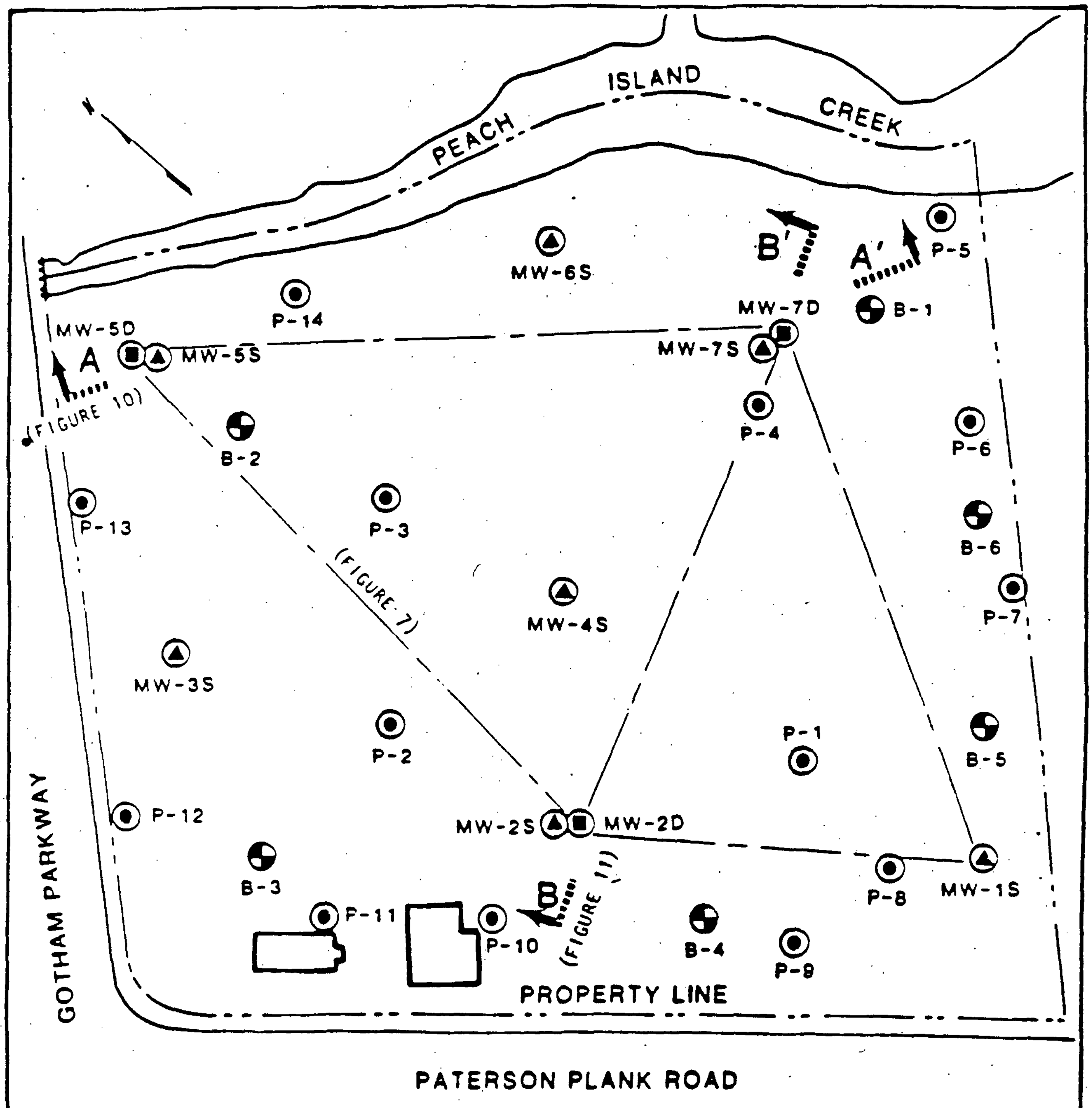
FIGURE 4

04609



NOTE: REPLACEMENT BORINGS WITH PREFIX "R" WERE DRILLED ADJACENT TO ORIGINAL BORING LOCATIONS. FOR CLARITY THE "R" BORINGS ARE NOT SHOWN ON THIS FIGURE. SEE SECTION 4.2.1 FOR DISCUSSION.

LOCATION PLAN

BORINGS, PIEZOMETERS AND WELLS

SCP SITE, CARLSTADT, N.J.

SOIL BORING
SHALLOW PIEZOMETER
SHALLOW MONITORING WELL
DEEP MONITORING WELL

0 100 200 FEET

04610

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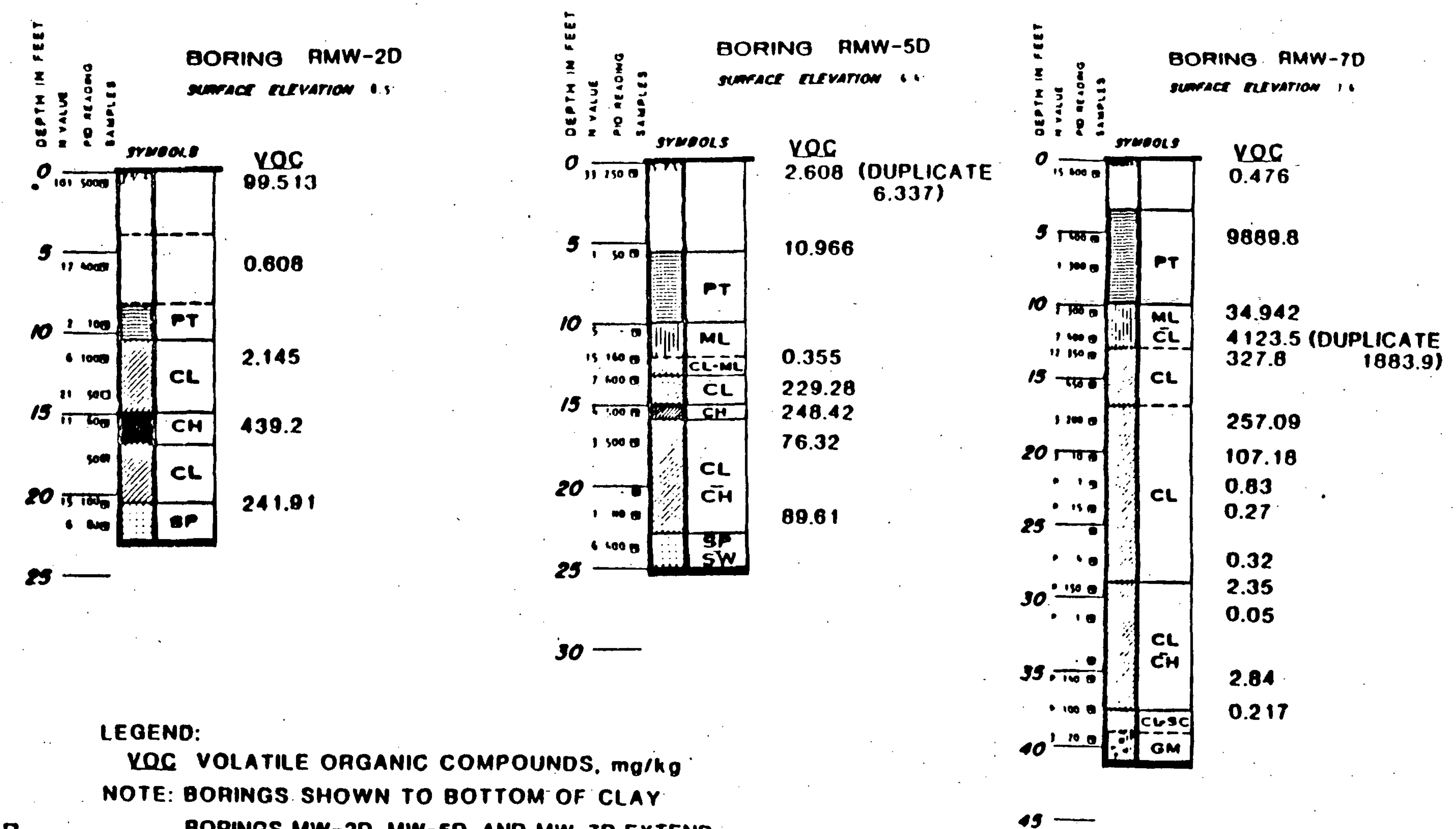
Figure 5



LEGEND:

VOC VOLATILE ORGANIC COMPOUNDS, mg/kg

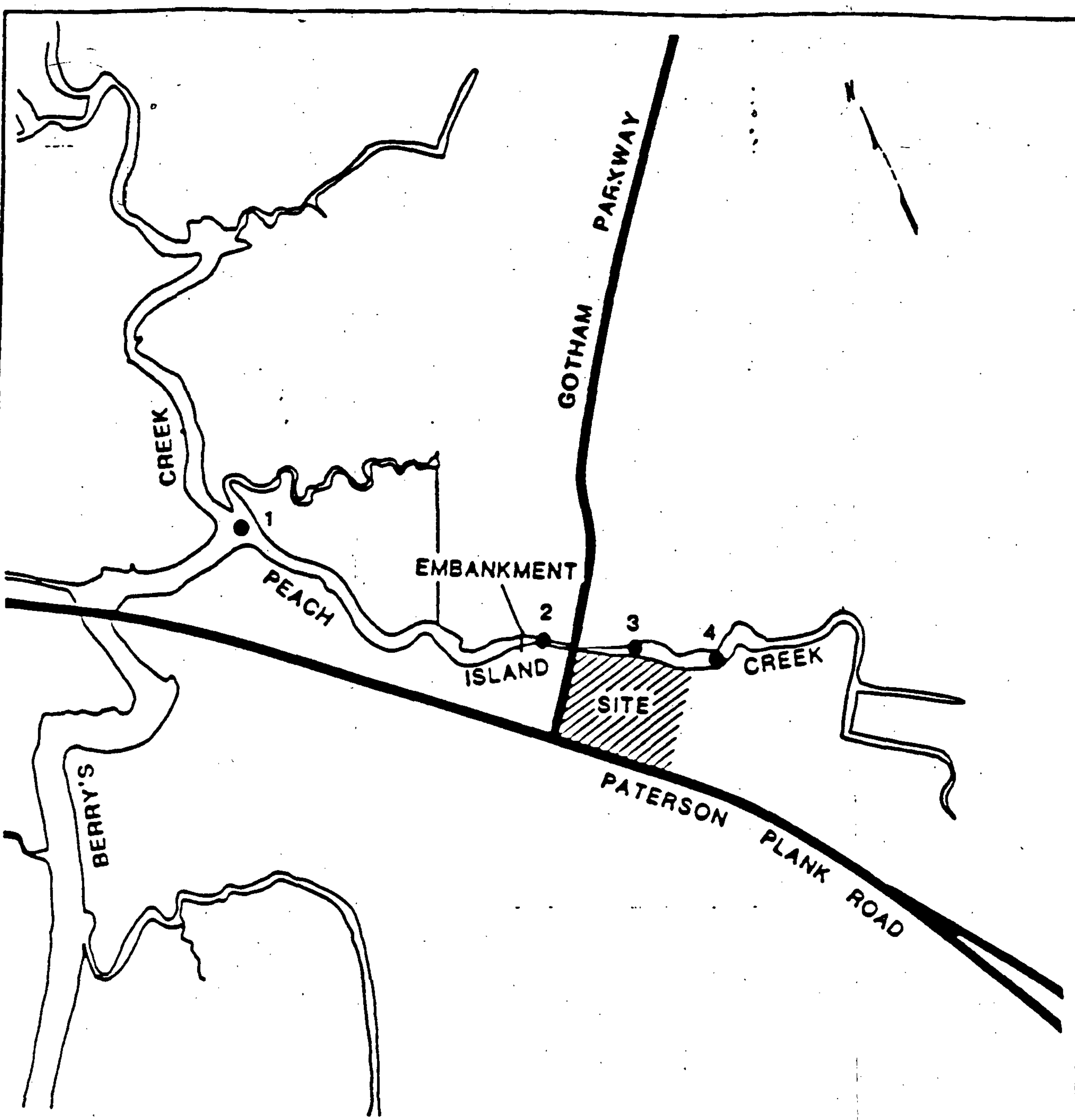
NOTE: BORINGS SHOWN TO BOTTOM OF CLAY
BORINGS MW-2D, MW-5D, AND MW-7D EXTEND
TO TOP OF BEDROCK.

PROFILE OF VOLATILE ORGANIC COMPOUNDS
DEEP BORINGS
SCP SITE, CARLSTADT, N.J.

DAMES & MOORE

04611

Figure (



STREAM WATER AND SEDIMENT SAMPLING LOCATIONS
SCP CARLSTADT
CARLSTADT, N.J.

0 500 1000 FEET

04612

KEY:
● SAMPLING STATION

BASE FROM AERIAL PHOTOGRAPHY
12/13/78 017-79 2-160

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FIGURE 7

RESPONSIVENESS SUMMARY
FOR THE PROPOSED REMEDIAL ACTION
AT THE SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
CARLSTADT, NEW JERSEY

TABLE OF CONTENTS

04613

I. INTRODUCTION

The Scientific Chemical Processing Superfund site (SCP site or the site) is located at 216 Paterson Plank Road in Carlstadt, New Jersey. The site, which is owned by Inmar Associates, was used during the 1970s by the Scientific Chemical Processing, Inc. for treatment of a wide variety of industrial chemical wastes. In 1980, operations at the facility were ceased. The site was placed on the National Priorities List of uncontrolled hazardous waste sites in 1983. A Remedial Investigation and Feasibility Study (RI/FS) was conducted by some of the potentially responsible parties under administrative orders issued in September and October 1985.

In accordance with the U.S. Environmental Protection Agency's (EPA) community relations policy and guidance and the public participation requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the EPA Region II office held a public comment period from May 19, 1990 to June 18, 1990, to obtain comments on the Proposed Plan for the site.

On June 5, 1990, EPA and the New Jersey Department of Environmental Protection (NJDEP) held a public meeting to receive public comments on the Proposed Plan. Copies of the Proposed Plan were distributed at the meeting and placed in the information repositories for the site.

Public comments received during the comment period are documented and summarized in this Responsiveness Summary. Section II presents a summary of questions and comments expressed by the public at the June 5 public meeting. Section III presents EPA's responses to written comments received during the public comment period. All questions and comments are grouped into general categories, according to subject matter. Each question or comment is followed by EPA's or NJDEP's response.

Attached are three appendices. Appendix A contains the Proposed Plan for the Interim Remedy. Appendix B contains the sign-in sheet of attendees at the June 5, 1990 public meeting. Appendix C contains the public notice issued to the Bergen Record and printed May 19, 1990 announcing the public comment period and availability of the RI/FS and Proposed Plan for public review.

II. PUBLIC MEETING COMMENTS

Comments raised during the public meeting for the SCP Carlstadt Site and the EPA's response to them are summarized in the following section. Comments received during the public meeting are organized into four categories: Effectiveness of the Interim Remedy, Remedial Investigation Activities, Health/Environmental Protection Issues, and Schedule for Remedial Activities.

A. Effectiveness of the Interim Remedy

1. **Both a local environmental/emergency planner and a resident suggested that a regional plan should be developed to address the SCP Carlstadt site and other hazardous waste sites in the area. They noted that there is a mercury contamination problem regionally, and that mercury has been identified as a contaminant at the SCP site. They maintained that because of the tidal nature of the area (i.e., Berry's Creek and its tributaries), contaminants could migrate freely from site to site.**

EPA Response: (Developed from the response at the public meeting.) Currently, there is a regional investigation of Berry's Creek and its tributaries which is being conducted by the New Jersey Department of Environmental Protection (NJDEP). The selection of a remedial alternative at a Superfund site is a joint effort between EPA and the State. EPA and NJDEP will consider the effect of the interaction between the SCP site and other sites in the area when evaluating remedial alternatives for any remedy which affects Berry's Creek or its tributaries.

2. **A local environmental/emergency planner thought that the construction of a slurry wall would result in the inadvertent creation of a cesspool in the tidal zone. Additionally, he suggested that because of the fluctuation in the ground water table, due to tides and flooding, that the slurry wall would be ineffective in dewatering the area.**

EPA Response: While dewatering of the site may pose some technical problems, EPA believes that dewatering of the first operable unit (FOU) zone through implementation of this Interim Remedy is attainable without detrimental affects to the tidal zone. The primary objective of the interim remedy identified in this decision document is to reduce the migration of hazardous substances, pollutants and contaminants into the groundwater and surface water until a permanent remedy for the site is selected and implemented. As a component of the interim remedy, the slurry wall will be designed and constructed such that it will not preclude any final remedy and it will assist in providing significant hydraulic isolation of the FOU and temporary structural support for any possible future excavation of the FOU. In addition, an infiltration control barrier will be placed over the site to reduce the infiltration of precipitation into the FOU zone.

B. Remedial Investigation Activities

1. **A local environmental/emergency planner asked whether off-site sampling had been conducted.**

EPA Response: In the past, obtaining access has been a problem in conducting off-site sampling. However, EPA currently is reviewing a plan submitted by a potentially responsible party (PRP) to conduct off-site sampling activities. This may begin as early as the fall of 1990.

C. Health and Environmental Protection Issues

1. **A resident asked about contamination of Peach Island Creek and the potential for health risks associated with both eating vegetables grown in gardens downstream and children playing in the stream.**

EPA Response: Several investigations are currently being conducted by the NJDEP in the vicinity of Peach Island Creek and Berry's Creek to determine the nature and extent of any contamination. The limited data collected to date indicates that contaminants from the SCP site have migrated into Peach Island Creek. Currently, EPA is reviewing a plan submitted by a PRP to conduct additional off-site sampling in order to better characterize the nature and extent of off-site contamination. Furthermore, it should be noted that since it is evident, based on areal photos, surveys and investigations, that the portion of Peach Island Creek downstream of the site runs through a predominantly industrial area, it is not likely that a residential area where vegetables may be grown in gardens or children may be playing in the stream is or will be adversely impacted by the site.

D. Schedule for Remedial Activities

1. **A resident asked about the schedule for remedial activities at the site. He felt that the investigations to date had taken too long.**

EPA Response: (Developed from the response at the public meeting.) The site owners, under EPA oversight, properly disposed of several tanks in 1986 that contained hazardous substances. The subsequent remedial investigation was delayed because EPA had to obtain access to properties. During the course of the remedial investigation, the site was found to be more complex than originally anticipated which necessitated expanding the scope of the RI. The EPA has projected that the preferred alternative could be designed and implemented within nine to fifteen months. Treatability studies for FOU zone soils may be conducted concurrently to help select a permanent remedy for soils in the FOU zone.

2. **A local environmental/emergency planner asked about the schedule for disposing of a tank that has been on-site for several years.**

EPA Response: (Developed from the response at the public meeting.) The complex mixture of contaminants contained in the tank presents significant technical difficulties in developing a method that will adequately address all of its contaminants properly. Treatability studies to identify methods of disposal will be undertaken shortly.

III. RESPONSE TO WRITTEN COMMENTS

The Hackensack Meadowlands Development Commission (HMDC) submitted comment that they "agree that the proposed plan Alternative 3 would be the best choice for the short-term remedy". The only concern the HMDC had was that they felt the estimated costs for operation and maintenance, trucking and treatment of groundwater with no pre-treatment appeared low.

EPA Response: The off-site transportation and disposal costs are based upon cost estimates for transportation to and disposal of extracted groundwater at the E.I. Dupont de Nemours facility in Deepwater, New Jersey, as provided to EPA by some of the PRPs.

Cohen, Shapiro et al., on behalf of some PRPs, submitted comments which may relate to the selection and/or implementation of a final remedy at the SCP Carlstadt site in a letter dated June 18, 1990. Schenk, Price et al., also submitted comments on behalf of Inmar Associates, Inc., and Marvin Mahan on June 18, 1990. The PRP comments are organized into three general categories according to subject matter: The proposed interim remedy, ARARs and TBCs, and the Endangerment Assessment.

A. Comments on the Proposed Plan

1. **The PRPs have commented that if the infiltration barrier includes a synthetic membrane (e.g., a HDPE liner) it will prevent (emphasis added) infiltration of rainwater into the FOU.**

EPA Response: This interim remedy is temporary in nature; therefore, the infiltration barrier must be designed in such a way as to a) not interfere with the collection of additional samples and b) not obstruct the implementation of the final remedy and c) minimize the amount of contaminated materials generated. As such, the infiltration barrier will not meet the standards of a permanent

RCRA Subtitle C cap. The temporary infiltration barrier will only reduce the amount of infiltration entering the FOU zone but will not completely prevent such infiltration.

2. **The PRPs have submitted several comments which relate to the design details for the temporary infiltration barrier. The PRPs discuss the merits of concepts such as conducting fine grading of the ground surface, installing a geotextile cushion (instead of a sand layer to prevent liner tearing or puncturing of the liner), and providing a soil cover (to protect the surface of the synthetic liner). The PRPs assert that such measures will provide an effective barrier, that will be easily removed for disposal, once the final remedy is selected.**

EPA Response: As stated above, the design objectives for the infiltration barrier will include minimizing the amount of infiltration entering the FOU, without interfering with sample collection or obstructing implementation of the final remedy. The Agency conceptually concurs with the PRPs' concerns to design the infiltration barrier in such a way as to ensure its effectiveness for the duration of the interim remedy (i.e., approximately 3 years), while providing for minimization of hazardous waste and materials generated. However, EPA believes it is premature to determine the design specifications for the infiltration barrier in this Record of Decision. Determining the design specifications is one of the primary functions of the remedial design process. Consequently, such specifications should be considered among other things, during the remedial design for this interim remedy.

3. **The PRPs have made several comments criticizing the manner in which effluent limitations for treated groundwater were developed for discharge to Peach Island Creek. The consequence of their comment with respect to remedy selection is that the effluent limitations would be unnecessarily stringent which would result in over-estimating the cost of on-site treatment. Furthermore, it is the PRPs' opinion that imposition of such limitations could virtually preclude the direct discharge option from consideration.**

EPA Response: With respect to selecting a remedial action for this interim remedy, EPA fully considered the direct discharge option. The on-site treatment option was not selected by EPA for reasons including the time frame necessary to design and construct an on-site treatment facility, and the cost to implement this alternative relative to off-site disposal. EPA anticipates that the interim remedy will be required for approximately three years. The time frame to design and construct the on-site treatment facility is estimated to range from 12-24 months as compared to 9-15 months for off-site disposal. Consequently, EPA believes that off-site disposal will achieve EPA's objectives for implementing an interim remedy at the site, including abating the risk to public health and the environment in the short term, more expeditiously.

4. **The PRPs have submitted several comments with respect to the design details for the slurry wall. The PRPs discuss the various potential design options including using sheet piling for stability during installation of the wall, using an HDPE liner and installing temporary berms. They also comment on the merits of different construction materials for the wall.**

EPA Response: While the Agency concurs with the PRPs' concerns that the wall's construction not preclude implementation of any final remedy and conceptually agrees with the PRPs' discussion of the merits regarding various potential design options, EPA believes it is premature to determine the design specifications for the wall in this Record of Decision. As stated above, determining design specifications is one of the primary purposes of the remedial design process. Consequently, such specifications should be considered, among other things, during the remedial design for this interim remedy.

5. **The PRPs attempt to quantify various parameters relating to the dewatering of the FOU, in a speculative manner. For example, the PRPs conjecture that the dewatering process will be "a one time event", that the estimated volume removed will be in the range of five hundred thousand to one million gallons, and that the water remaining after dewatering will be approximately one foot above the clay layer.**

EPA Response: While EPA believes that the majority of the groundwater can be extracted from the FOU during an initial dewatering effort, subsequent dewatering events may be necessary. In addition, although the range with respect to the volume of groundwater to be extracted seems reasonable, it represents an estimate. One objective of this interim remedy is to dewater the entire FOU zone. Therefore, the actual amount of contaminated groundwater extracted may exceed this range.

6. **The PRPs comment that dewatering the FOU will <u>prevent</u> (emphasis added) contaminant migration into deeper aquifers.**

EPA Response: Dewatering the FOU will <u>mitigate</u>, not <u>prevent</u> contaminant migration from the FOU to the underlying aquifers.

7. **The PRPs comment that the material to be excavated during the construction of a slurry wall will probably contain levels of volatile organic compounds (VOCs) which will warrant the use of control measures. They assert that the slurry within the trench and mixed with the excavated material will provide some degree of vapor suppression, however, it may be necessary to apply foam to control VOC emissions adequately.**

EPA Response: While EPA is concerned about potential VOC emissions during the construction of a slurry wall, it is too early to determine whether these emissions will pose a health and safety problem. EPA conceptually agrees with the PRPs' proposed method to respond to VOC emissions, however, the Agency believes that any response or control method(s) for addressing this and other health and safety concerns should be included in a health and safety plan developed during the remedial design.

8. **The PRPs comment that a temporary infiltration barrier will immediately <u>break</u> a direct contact pathway which would <u>remain broken</u> for the duration of the interim remedy, will <u>preclude</u> wind-borne transport of contaminated dust particles, and <u>prevent</u> further contamination of Peach Island Creek due to erosion of contaminated soil and rainwater runoff into the Creek (emphasis added).**

EPA Response: The construction of a temporary infiltration barrier will mitigate the potential for direct contact with contaminated material for the duration of the interim remedy not "immediately break a direct contact pathway". EPA believes the infiltration barrier will mitigate, not "preclude or prevent" the air transport of contaminated dust particles and further contamination of Peach Island Creek via contaminated soil and rainwater runoff from the site.

9. **The PRPs assert that it is possible that VOCs could volatilize in the unsaturated FOU material and collect beneath the infiltration barrier. Consequently, the PRPs conclude that vents will have to be installed through the membrane to preclude the possible accumulation of vapors beneath the infiltration barrier.**

EPA Response: The PRPs concern regarding the potential accumulation of VOC vapors beneath the infiltration barrier does not seem to be well supported. The Agency has had experience at other Superfund sites implementing the elements of this interim remedy. Venting has not been a concern in these situations, and there does not appear to be any information which would warrant the installation of vents at this site.

10. **The PRPs comment that it is estimated that no more than 300 gallons of water could infiltrate into the dewatered FOU during the assumed 3-year duration of the interim remedy.**

EPA Response: While the Agency agrees that the interim remedy will significantly reduce the quantity of water infiltrating the FOU, an estimated 300 gallons of infiltration during the entire assumed 3-year duration of the interim remedy seems unrealistically low as it is calculated assuming ideal conditions. Since a major objective of this interim remedy is to dewater the entire FOU and _mitigate_ the infiltration of water into the FOU, it should be recognized that the volume estimates may be exceeded and, therefore, additional groundwater extraction may be necessary to maintain a dewatered FOU.

11. The PRPs comment that the resultant RI data does not demonstrate that the site is adversely affecting Peach Island Creek or the surrounding wetlands. They further comment that although there are chemical substances in the surface water of Peach Island Creek and in the stream sediments, it has not been demonstrated that these chemical substances have had an adverse effect or that the chemical substances are solely from the SCP Carlstadt site.

EPA Response: A comprehensive evaluation of the site's environmental impacts on Peach Island Creek and the surrounding wetlands has not yet been conducted. The RI results indicate that surface water and sediment in Peach Island Creek are, however, contaminated with many hazardous substances which are similar to and/or identical to those which were found in the soils and groundwater at the site. Many of these hazardous substances have migrated and continue to migrate from surface soils into the water table aquifer and other underlying groundwater aquifers, as well as Peach Island Creek. Moreover, the PRPs have admitted that groundwater from the water table aquifer, which is grossly contaminated with hazardous substances, discharges to this Creek. Further investigation of contaminant migration from the site into groundwater, surface water and sediments is currently underway, and a second operable unit remedy will be selected to address impacts of such migration.

The RI results indicate that surface water and sediment in Peach Island Creek are contaminated with hazardous substances similar to and/or identical to those which were found in the soils and groundwater at the site. For example, 1,1,1-Trichloroethane, chloroform, mercury, arsenic, dieldrin and PCB Aroclors (1242, 1254, 1260, and 1248) were all detected in soils and groundwater at the site and in the surface water and sediment of this Creek.

12. The PRPs assert that due to the higher levels of contaminants in Peach Island Creek upstream from the site, it could be assumed that there are other sources impacting the stream.

EPA Response: Peach Island Creek is tidally influenced. Therefore, the site cannot be ruled out as a source of higher levels of contaminants upstream.

13. The PRPs comment that the Administrative Record does not support that certain action-specific ARARs will be met (e.g., Flood Plain Management and Wetlands Protection requirements).

EPA Response: Action-specific ARARs will be met with respect to implementation of this interim remedy. The manner in which such ARARs will be complied with will be fully determined during the remedial design process.

14. The PRPs comment that the construction of the slurry wall now could be incompatible with the final remedy selected for the site. The interim remedy should not be finalized until additional studies for the FOU and the second operable unit (SOU) are completed. The results of the studies are needed to select the appropriate slurry wall type and depth for design to assure compatibility with the final remedy.

EPA Response: The elements of this interim remedy are consistent with any future remedy for the FOU zone. The FOU zone must be dewatered before treatment can be employed to remediate this zone or if a containment option is selected. The selection of the appropriate construction material and method for installing the containment wall will be determined during the remedial design process. One of the design objectives for the containment wall will be to evaluate options which will provide maximum support during excavation and long term effectiveness.

15. Insufficient information is available regarding characterization of the site geologic/hydrogeologic conditions.

EPA Response: While some limited characterization work is needed to select a permanent remedy for the FOU zone and more extensive work is needed for SOU, this information is not relevant to the selection of this interim remedy. Specifically, this interim remedy does not address remediation of contaminated soils within the FOU zone or contaminated groundwater beneath the zone. Consequently, further soil sampling of the FOU zone and geologic and hydrogeologic evaluation of the underlying aquifers would not factor into the remedy selection process for this interim response action. Moreover, there is sufficient data available to demonstrate the need to take an interim action to reduce further contaminant migration from the FOU zone into underlying aquifers and Peach Island Creek.

16. No data in the Remedial Investigation indicated that a "leaky" condition existed across the clay-silt layer separating the shallow and till aquifers.

EPA Response: EPA disagrees with this statement. The data collected at the site strongly suggest that hazardous substances have migrated from the shallow aquifer downwards across the clay-silt layer into the underlying till aquifer. This is evidenced by the following observations, among others:

1. Piezometric data collected at the site indicated a downward hydraulic gradient exists between the surfaces of the water table and till aquifers; this gradient would tend to force fluids and contaminants downwards across the clay lens into the till aquifer.

2. The RI data revealed that many of the same hazardous substances, particularly, volatile organic compounds, which are pervasive in the highly contaminated FOU zone also exist in the underlying clay-silt layer and in the two aquifers beneath this layer. For example, the RI data indicates that many VOCs including chloroform, 1,1-dichloroethane, 1,2-dichloroethane, 1,2-trans-dichloroethylene, 1,1,1-trichloroethane, methylene chloride, trichloroethylene, tetrachloroethylene, toluene, chlorobenzene, and xylenes exist in the clay lens. All of these VOCs are hazardous substances. All of these VOCs exist in the water table above the clay lens. All these VOCs, with the exception of xylenes, were also detected in the till aquifer beneath the clay lens.

3. The clay lens is highly variable in thickness. It does not have the same characteristics under all areas of the site. It does not act as an impermeable barrier to downward migration of contaminants from the water table aquifer. The PRP contractor, Dames & Moore, indicated that ".. water in the till aquifer contains primarily [VOCs] .. it appears that the compounds detected in the till aquifer migrated through [the] clay layer from the overlying fill and the water table aquifer" (Draft RI Report, 9/88, p.64). Dames & Moore also indicated that, although some "attenuation" of VOCs occurs across the clay lens at one station (RMW-7D), that attenuation is present "to a much lesser degree" at station RMW-5D and is "<u>almost absent</u>" at station RMW-2D (Draft RI Report, 9/88, p. 63).

The RI data referred to above <u>clearly</u> show that some VOCs (and possibly other hazardous substances) have migrated from the shallow aquifer into the till aquifer under the site. This downward migration of contaminants is likely to continue absent any control measures. Therefore, the contention that "leaky" conditions do not exist is obviously not supported by the RI data collected at this site to date.

<u>B. Comments Relating to ARARs/TBCs for the Final Remedy</u>

Many views have been expressed in the Cohen, Shapiro <u>et al</u> submission on behalf of some PRPs to EPA-Region II, dated June 18, 1990, concerning ARARs and TBCs which may relate to the selection and/or implementation of a final remedy at the SCP Carlstadt site. Comments concerning ARARs were also submitted by Schenk, Price <u>et al</u>, on behalf of Inmar Associates, Inc. and Marvin Mahan. Examples of such comments include the following:

1. Comments relating to the State and Federal classifications of the three aquifers underlying the site and the potential uses of these aquifers;

2. Comments relating to required cleanup levels for specific contaminants which exist in the three aquifers [i.e., the water table, till and bedrock aquifers under the site (e.g., whether State and Federal maximum contaminant levels (MCLs) are applicable or relevant and appropriate target levels for any or all of these three aquifers)];

3. Comments relating to required cleanup levels for specific contaminants which exist in soil at the site (e.g., comments concerning use of the EPA PCB Spill Policy and New Jersey ECRA action levels to establish soil cleanup levels);

4. Comments relating to the classification of waters in Peach Island Creek which adjoins the site;

5. Comments concerning chemical specific cleanup levels for the waters in Peach Island Creek;

6. Comments relating to potential waiver(s) of groundwater ARARs or use of alternate concentration levels (ACLs) as cleanup objectives in groundwater at the site;

7. Comments relating to the location of compliance point(s) for achieving cleanup target levels in groundwater at the site;

8. Comments relating to the use of TBCs in selecting required cleanup levels for specific contaminants in the groundwater, the soil and the atmosphere at the site and in Peach Island Creek;

9. Comments relating to off-site treatment or disposal of any contaminated soil or debris taken from the site;

10. Comments relating to other potential chemical specific, location specific and action specific ARARs which may relate to selecting and/or implementing a final remedy at the site (e.g., the potential effect of LDRs on on-site actions; of State siting criteria for new hazardous waste facilities on on-site incineration, etc.)

EPA Response: EPA disagrees with many of the ARAR and TBC comments which were submitted by the PRPs in their submission of June 18, 1990. The majority of the ARAR/TBC comments submitted by the PRPs, however, do not relate to the interim remedy nor do they challenge any of the components of the interim remedy or the underlying rationale for that remedy which is the subject of this ROD. The interim remedy selected in the ROD is merely an initial containment measure intended to reduce the migration of hazardous substances out of the FOU zone. It does <u>not</u> include any measures for cleaning up soil and groundwater at the site or the waters and sediment in Peach Island Creek to achieve some in-situ target level(s). Any measures which may be required to achieve these objectives will be the subject of additional remedial measures which EPA will identify in future ROD(s) for this site. EPA, therefore, has elected not to provide a detailed response to these comments, including the types of comments noted in 1. through 10., above, since these comments address issues which are not significant with respect to or relevant to the interim remedy which is the subject of this ROD. Comments, such as those described in 1. through 10. above, which relate to the final remedial measures for the site, will be addressed, as appropriate, in the administrative record(s) which will be prepared by EPA for those future ROD(s).

EPA has decided, however, to provide an initial response to some of the more common ARAR/TBC comments which, although not related to this interim remedy, address future remedial actions for the site. These comments and the initial EPA responses are stated below. The Agency provides these comments as a courtesy to interested parties without any waiver of its right to comment on and take any position on any ARAR/TBC issues in any administrative records which may be prepared by EPA relating to this site in the future.

11. Safe Drinking Water Act (SDWA) MCLs apply only at the tap. They do not appear to be applicable to the shallow and till aquifers because neither of these aquifers is a drinking water source. Cleanup criteria applied to the upper aquifers should only assure that the bedrock aquifer meets MCL standards.

EPA Response: MCLs are enforceable drinking water standards. Both MCLs and non-zero MCLGs promulgated under the SDWA may be relevant and appropriate to remediation of groundwater at CERCLA sites and may be used as cleanup levels in groundwater itself.

The State of New Jersey has designated all three aquifers underlying the site as Class GW2 waters. EPA also used its own Groundwater Protection Strategy to determine the appropriate remediation for contaminated groundwater under this site, as required by the NCP (See 55 Fed. Reg. 8732). Pursuant to that guidance, EPA-Region II determined that all three aquifers under the site should be categorized as Class II waters. MCLs and non-zero MCLGs are generally the relevant and appropriate requirements for groundwater that is or may be used for drinking (55 Fed. Reg. 8754). The remediation goals for Class II waters are generally set at MCLs and non-zero MCLGs where relevant and appropriate (55 Fed. Reg. 8732).

The water table aquifer is highly contaminated with many hazardous substances, including many VOCs. This aquifer is hydraulically connected to the till aquifer beneath it. This is evidenced by, among other indicia, the fact that the silt-clay layer located between these aquifers does not act as an impermeable barrier separating these two aquifers. A number of the same hazardous substances, including many VOCs, which exist in the water table have been found in the silt-clay layer and in one or both of the aquifers beneath it. Many VOCs have clearly migrated across the clay-silt layer from the more highly contaminated water table aquifer into the till aquifer beneath it.

Notwithstanding the presence of VOCs in the till aquifer, this aquifer is presently either being used directly as a source of water and/or is hydraulically connected to one or more aquifers from which withdrawals are occurring. The periodic pattern (reported by Danes & Moore) in this aquifer revealing a noticeable change in hydraulic characteristic(s) every weekend (when groundwater withdrawal rates would likely differ substantially from weekday rates) supports this premise.

The bedrock aquifer is being used as a potable supply at present. More than 50 wells, including at least one domestic well, are installed in the bedrock aquifer within a two mile radius of the site. The bedrock aquifer is hydraulically connected to the till aquifer. Pump tests performed during the RI support this conclusion. Some VOCs which exist in the water table and till aquifers also exist in this aquifer.

All three aquifers under the site, including the highly contaminated water table aquifer, are hydraulically interconnected. Meeting MCLs and non-zero MCLGs standards only at the tap would not protect many potential future users from adverse effects caused by exposure to VOCs and other hazardous substances which exist in these aquifers especially if any wells were to be placed into and water was withdrawn from either the water table or till aquifers in the future. EPA's policy is to attain ARARs so as to ensure protection at <u>all</u> points of potential exposure (55 Fed. Reg. 8753). Requiring compliance with MCLs and non-zero MCLGs just at the tap rather than in groundwater would be inconsistent with this policy and would also undercut the clear Congressional intent that under CERCLA "groundwater should be restored to protective levels" (55 Fed. Reg. 8753). MCLs and non-zero MCLGs are therefore both relevant and appropriate for remediation of all aquifers under this site. Application of these standards to all three aquifers under the site is consistent with the Congressional mandate expressed in CERCLA.

12. **Groundwater in the area of the site is mineralized, has total dissolved solids (TDS) concentrations greater than 500 parts per million (ppm) and is not suitable for human consumption. It should therefore be categorized as Class GW3, not Class GW2**

waters.

EPA Response: The State of New Jersey has designated all three aquifers under the site as Class GW 2 waters. EPA does not disagree with that determination. The TDS data collected in groundwater at and near the site shows sporadic TDS readings above 500 ppm. This data does not, however, support the contention that the background (i.e., unaffected by the site) TDS levels in any of the three aquifers under the site exceed 500 ppm. Furthermore, the mixture of contaminants which were disposed of at the site and which now exist in the FOU zone could be a major TDS source contributing to the elevated TDS levels detected in groundwater beneath and near the site.

Pursuant to the EPA Groundwater Protection Strategy, EPA has determined that the groundwaters under the site are Class II waters. Even under that guidance, groundwaters may be considered as potentially potable as long as TDS levels do not exceed 10,000 ppm. TDS levels in none of the aquifers under the site exceed this threshold.

13. **The Land Disposal Restrictions (LDRs) under RCRA may apply to the contaminated soils excavated during the construction of the slurry wall.**

EPA Response: Placement outside a waste management unit must occur before LDRs are triggered. Contaminated soils will be excavated and consolidated near the slurry wall trench and within the same waste management area. These activities are not likely to constitute placement outside the waste management unit and, therefore, LDRs will not be triggered.

C. Endangerment Assessment

TERRA Consultants submitted comments on the Base Line Risk Assessment (BRA) on behalf of the PRPs represented by Cohen, Shapiro, et al.,. Wheran Engineering Corporation also submitted comments on the BRA, on behalf of Inmar Associates, Inc., and Marvin Mahan.

1. **One of the PRPs' main contentions is that the risk assessment "exaggerates and distorts the actual risks to human health under current site and nearby land use conditions."**

EPA Response: EPA strongly disagrees with this assertion. The BRA was performed in accord with the standard methodology and procedures used by EPA to assess risks posed by conditions at Superfund sites. It should also be noted that one of the purposes of the BRA is to evaluate risks under current site land use conditions in the absence of remediation (the no-action alternative). EPA is mandated by law to protect public health and the environment. EPA is authorized to act under CERCLA when there

"... <u>may</u> be an imminent and substantial endangerment..." or if "...there is a release or substantial threat of release which <u>may</u> present an imminent and substantial danger..." (emphasis added). Therefore, EPA must evaluate risk in a conservative manner which ensures that the risk is not underestimated. Consequently, the purpose of a BRA is to provide an indication of the range of risks associated with the SCP site in the absence of remediation.

2. **TERRA further states that a reader "would mistakenly conclude that residents and workers <u>are being exposed</u> to chemicals from the SCP site." TERRA additionally states that "there is no evidence that these exposures are actually occurring."**

EPA Response: The RI studies did not indicate that any specific resident or worker was "being exposed to chemicals from the SCP site". This does not support a conclusion, however, that no individual or group of individuals is being exposed to chemicals from the site. Numerous chemicals are migrating out of the site in groundwater, among other routes, which may in fact now be resulting in exposure to some individuals. When conducting a baseline risk assessment, evidence of actual exposure is not a prerequisite to evaluating an exposure pathway. If there is a potential for an exposure pathway to be complete, such a pathway may be evaluated. Potentially complete exposure pathways were evaluated under current site use conditions in the SCP BRA. The assumptions used in evaluating exposure pathways were selected to provide an indication of what the potential risks would be under a range of scenarios. In the absence of detailed site-specific data, values provided in USEPA's Risk Assessment Guidance for Superfund (RAGS) were used as defaults. This element of conservatism, and the reliance on use of values provided in RAGS, is noted in the BRA. Contrary to the implication made by TERRA, the BRA is clear with respect to the assumptions used to evaluate exposure pathways.

TERRA recognizes EPA's use qualifiers in the BRA to clarify the manner which exposure pathways are evaluated. EPA believes that it has properly communicated the risks posed by the site to the public. Based upon comments received during the public comment period, EPA has no reason to believe that the general public misunderstands the information in the BRA.

3. **The second of TERRA's main objections relates to the conclusions concerning adverse effects of the SCP site on Peach Island Creek because of the reliance on results from only four samples.**

EPA Response: The potential impacts of the SCP site on Peach Island Creek are not fully defined. An examination of the available data from surface water, sediment, shallow groundwater, and soil at the site indicates that migration of hazardous substances from the site to Peach Island Creek has occurred. A discussion supporting this conclusion is provided in Section 3.1.2 of the BRA.

4. **TERRA disagrees with the use of a maximum detected concentration when making any conclusions in the report, and states that average case risks should be used to temper the results of the maximum case scenarios.**

EPA Response: We agree that the results of both exposure cases should be considered when making risk management decision regarding the SCP site. EPA has, however, followed the standard methodology developed for and used by EPA to determine risks posed by conditions at Superfund sites. The results presented in the BRA reflect potential risks under current and possible future site and land use conditions. EPA has made conclusions regarding the need for remediation at the SCP site by considering all relevant factors, only one of which is the results of the BRA. The maximum case results have been considered in conjunction with other results in the BRA, such as those for the average case.

5. **TERRA indicates that inhalation risks to metals in soil are estimated using concentrations that are within background levels.**

EPA Response: It should be noted that a comprehensive investigation to establish off-site background levels of metals in soil has not been conducted. Therefore, the conclusion cannot be drawn that the concentrations are within background levels. The BRA states that for some of the selected indicator chemicals, background sources may be contributing to the concentrations detected. The uncertainty associated with the inhalation risks calculated for naturally occurring metals, as well as the uncertainty regarding the speciation of chromium, have been recognized by EPA in its evaluation of the SCP site.

6. **TERRA disagrees with the summation of PCB results and application of a slope factor based on Aroclor 1260 for this sum because Aroclor 1242, the predominant PCB detected at the site, has not been demonstrated to be carcinogenic.**

EPA Response: While different PCB Aroclors may have different potencies and evidence for carcinogenicity, EPA has not developed an approach for differentiating between Aroclors in Superfund site risk assessments. Current EPA policy is to treat all PCBs as probable carcinogens which is a prudent approach for protection of public health. The approach used in the BRA conforms with current EPA policy.

7. **TERRA also indicates that relative potency factors should have been applied for specific carcinogenic PAHs.**

EPA Response: As for PCBs, while different carcinogenic PAHs are known to have different potencies, EPA has not developed and approved an approach based on relative potency factors for use in Superfund site risk assessments. As a result, the current EPA policy of treating all carcinogenic PAHs using the cancer slope factor for benzo(a)pyrene was followed in the BRA.

8. **TERRA notes that subchronic reference doses (RfDs) should have been used for evaluating the trespasser scenario.**

EPA Response: The results contained in the BRA would not be affected significantly if subchronic reference doses (RfDs) were used. The hazard index for this pathway would still exceed unity since, for most of the chemicals, the chronic and subchronic RfDs are the same (e.g., for aldrin, dieldrin, PCBs, and trichloroethylene.

9. **TERRA believes that the air pathway is not "complete" for nearby workers and residents. TERRA believes there is "no relevant environmental transport medium for dust or volatilization" because ambient air monitoring did not detect volatiles during non-intrusive activities, the remedial investigation work plan did not consider air a relevant exposure route. In addition, much of the site is covered with vegetation, and surface soil is comprised of rubble, concrete slabs and gravel.**

EPA Response: EPA disagrees that these factors indicate there is no potential transport medium for any chemicals present in soil at the SCP site. While the presence of vegetation can reduce fugitive dust emissions, its presence does not significantly affect emissions of volatile chemicals. Finally, as noted in the BRA, the rubble-like surface of the site was considered in estimating fugitive dust emissions. The conclusion was reached that it would not preclude dust emissions from occurring at the site. Despite the assertion by TERRA, the potential for volatilization of some chemicals from the site does exist as does the potential for some suspension of surface materials into air. Once airborne, these materials could be transported to nearby areas where individuals are located.

10. **TERRA contends that the July 1987 surface water data was not included in the BRA and that this data would have affected the conclusion drawn in the BRA.**

EPA Response: Apparently, the July 1987 surface water data were not included in the BRA. These data would have indicated lower concentrations for some chemicals than the December data. However, this would not have altered the primary conclusions regarding the potential impact of the site on Peach Island Creek. The RI and the data from surface water, sediment, shallow groundwater, and soil at the site indicates that hazardous substances have migrated from the site to Peach Island Creek. A discussion supporting this conclusion is provided in Section 3.1.2 of the BRA and in response to Comment 3, above. It should also be noted that additional surface water and sediment sampling will be conducted. Potential risks to ecological receptors will then be re-evaluated based on the results of the additional sampling program.

11. **Terra questioned whether or not the Koc values used in the health assessment were already adjusted for organic carbon content (foc). Terra also asserted that the comparison of total metals to ambient water quality criteria (AWQC) is incorrect. Terra believes that use of the dissolved metals data for such comparison is more appropriate.**

EPA Response: The Koc values used in the health assessment were obtained from the Dames and Moore Remedial Investigation Report. The calculation of sediment quality criteria (SQC) included only one adjustment for organic carbon content. Total metals data was used to compare with AWQC as it provides a more conservative, protective approach in the absence of acid-soluble fraction of metals data. Using the dissolved metals data for such comparison may have underestimated the actual risks present.

12. **Terra questions if muskrats actually drink salty (brackish) water.**

EPA Response: Muskrats live in brackish environments and it is assumed that they ingest brackish water to some extent. Communications with the Department of Mammalogy at the Harvard Museum of Natural History (Boston, MA) and the Department of Mammalogy at the National Zoo (Smithsonian Institution, Washington, D.C.) revealed their support of this assumption.

13. **Terra suggests that one must decide whether freshwater or saltwater standards are more applicable to the brackish Peach Island Creek. Terra also asserts that "...EPA incorrectly estimated water concentrations of several chemicals."**

EPA Response: The brackish water of Peach Island Creek is a transition zone between marine and freshwater aquatic environments and, as such, it may contain both freshwater and marine species, as well as organisms that are endemic to estuarine environments. Thus, to be more conservatively protective of the wide range of organisms that may occur in this area, the lowest AWQC was selected from the available freshwater and marine AWQCs.

The estimated water concentrations are correct in the context they were used for estimating exposures to benthic invertebrates.

14. **Terra could not determine from Table 6-2 of the health assessment when a freshwater or saltwater AWQC was used to calculate a SQC or determine what Koc was used for each chemical. Terra also asserts that the action level for PCBs and the discussion on the toxicity of metals in sediments needs revision based on some recent studies conducted by the U.S. Army Corp of Engineers on Berry's Creek.**

EPA Response: The SQCs in Table 6-2 for benzo(a)pyrene, flouranthene, pyrene, dieldrin, and Acoclor 1254 are from EPA's 1988a Application of Interim Sediment Quality Criteria Values at Sullivan's Ledge Superfund Site. The SQCs for acenaphthene, phenanthrene, Aroclor 1242, and Aroclor 1260 were calculated from information also provided in the above described EPA document. The SQCs for bis(2-ethylhexyl phthalate, di-n-butyl phthalate, chrysene, flourene, naphthalene, and Aroclor 1248 were calculated from Koc values available in the literature and the AWQCs.

EPA was not aware of the studies performed by the U.S. Army Corp of Engineers when developing the Health Assessment. Please be assured that the Agency will take such studies into consideration and make any modifications to the health assessment as are deemed appropriate prior to the implementation of the final remedy. It should also be noted that during interim measures ARARs (i.e., action level for PCBs) do not have to be met, as long as these requirements will be achieved upon completion of the permanent remedy. Accordingly, final cleanup levels for soil and groundwater do not have to be achieved for this interim action, but will be addressed in the final remedy.

15. **Terra asserts that EPA calculated concentrations far in excess of the detection Limit (TAble 6-4 of the health assessment) instead of using the actual data collected to estimate levels in invertebrates and ultimately risks to waterfowl.**

EPA Response: The chemical concentrations in water in Table 6-4 are the concentrations estimated for interstitial (sediment-pore) water based on measured sediment concentrations. The concentrations recommended for use by Terra are, in contrast, water column concentrations. These are not the same as sediment pore water concentrations (SPWC) and, in fact, would be expected to be much lower than the SPWC. SPWC more accurately reflect the concentrations to which benthic invertebrates could be exposed to than water column concentrations measured in the overlying water. Thus, the concentrations used in the health assessment to estimate chemical concentrations in invertebrates are considered appropriate.

The U.S. Army Corp of Engineers (COE) study was not available when the health assessment was developed. EPA will take the COE's study into consideration and make any modifications to the health assessment as are deemed appropriate prior to the implementation of the final remedy. In the absence of valid site-specific bioconcentration factors (BCFs), the BCFs used in the health assessment are appropriate.

16. The PRPs assert that because the nearest residence is about one mile from the site, the inclusion of inhalation pathways where "nearby residents" are the receptors is questionable.

EPA Response: The inhalation pathway is included in the risk assessment due to the potential routes of exposure via inhalation of volatile contaminants and/or fugitive dust released from the soil. The potential receptors include on-site trespassers, "nearby residents" and workers on adjacent properties.

17. The PRPs comment that the BRA excluded copper as an indicator chemical because it is an essential nutrient, yet this approach was not taken with other metals such as chromium, zinc and selenium.

EPA Response: Metals should not have been excluded from consideration due to their potential to be an essential nutrient in certain doses.

18. The PRPs disagree with EPA's inclusion of vinyl chloride as an indicator chemical due to biotransformation.

EPA Response: It should be noted that precursor compounds to vinyl chloride were detected at high levels in both soils and groundwater. Vinyl chloride may have been detected less frequently than its precursor compounds because of the time frame necessary for the biotransformation process or its presence below the contract laboratory program (CLP) detection limit. This is, however, no reason to assume that biotransformation processes may not occur and is not a valid reason to exclude vinyl chloride as an indicator chemical.

19. The PRPs comment that the aquifer discussion in the Risk Assessment does not indicate whether the till and/or bedrock aquifers discharge into Peach Island Creek. They assert that such information is relevant to an understanding of contaminant migration.

EPA Response: EPA agrees that groundwater flow direction and aquifer discharge areas are relevant to understanding contaminant migration. The risk assessment includes such information to the extent that it references the Dames and Moore Remedial Investigation Report.

20. The PRPs comment that using half of the detection limit or Contract Required Quantitation Limit (CRQL) for nondetected analytes in calculating the geometric mean is only justifiable when the majority of the samples contain the analyte and there is reason to believe that the analyte may in fact exist in the nondetect samples at a below-detect concentration.

EPA Response: The risk assessment guidance for Superfund states that "unless site-specific information indicates that a chemical is not likely to be present in a sample, do not substitute the value zero in place of the sample quantitation limit". "Also, do not simply omit the non-detected results from the risk assessment." The fact that a chemical was detected in more than one sample on-site indicates that such chemical may be present in those samples where it was not detected. Therefore, it is reasonable to assign a value of one-half the detection limit for non-detects when averaging data for risk assessment purposes, thus, avoiding biasing the results high or low. (See Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), EPA/540/1-89/002.)

21. The PRPs comment that the rationale for inclusion of exposure pathways is somewhat inconsistent. They assert, for example, that while it is true that surface water and sediment pathways are probably incomplete due to the lack of recreational interest, it should follow therefore that the site is not a likely target for trespassing. The PRPs further comment that the inclusion of on-site drinking water pathways is so highly theoretical that their inclusion should justify the inclusion of all pathways having a remote potential for completeness.

EPA Response: EPA disagrees with the conclusion that the site is not a likely target for trespassing because the surface water and sediment pathways are probably incomplete due to the lack of recreational interest. The evaluation of each pathway should be pathway-specific. Because the surface water and sediment pathways are incomplete due to the lack of recreational interest does not mean that the potential for site trespassing becomes insignificant. While the Agency believes that a conservative approach should be taken when evaluating exposure pathways, it is understood that "all pathways" may not be included based on the results of a screening analysis.

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22. The PRPs comment that volatile organic emission rates should not have been calculated based on concentrations found at all depths. They assert that it would have been more reasonable to use concentrations in the 0-2 foot surface soil interval to calculate the emission rates into the air.

EPA Response: EPA believes that the use of the geometric mean, which is based on volatile organic concentrations found at each depth sampled, is more appropriate as it provides a more representative means of calculating the volatile organic emission rates into the air.

23. The PRPs also provide several other comments which relate to what they believe are inadequacies in the risk assessment. Such observations include the absence of a drinking water pathway from the bedrock aquifer and the lack of quantitatively evaluating ecological pathways.

EPA Response: While the Agency believes that certain observations made by the PRPs may be legitimate, it should be noted that the incorporation and/or addressing of such comments by the risk assessment would potentially increase the risk levels associated with the site. As a result, the justification for implementing the interim remedial action selected in the Record of Decision would be further substantiated.

IV. COMMUNITY RELATIONS ACTIVITY CHRONOLOGY

Since 1985, there has been generally a relatively low level of community involvement and concern about the SCP Carlstadt site. The limited concerns that have been expressed by residents and local officials in the past focused on the following:

- concerns regarding a tank remaining on-site;
- potential health risks associated with the site;
- site access; and,
- EPA's role at the site.

Further information on these concerns can be found in the Public Information Meeting Summary of August 1987 which is available for review at the information repositories outlined in the public notice for the site (see Appendix C).

V. REMAINING CONCERNS

Recently, as evidenced by the comments above, community environmental/emergency planners have expressed interest in the site and site remedial activities. The identification of a regional hazardous waste problem seems to have created an interest in the remediation of the SCP Carlstadt site, particularly, as it affects the area regionally and how it may be affected by other hazardous waste sites in the area. Issues related to the close coordination of remedial efforts with community planners will continue to be a critical area of concern.

EPA has and will continue to work closely with the Hackensack Meadowlands Development Commission and other community environmental/emergency planners. The community will continue to be kept apprised of the remedial actions which will be implemented at the site. The Agency will also continue to coordinate site-related activities in conjunction with the New Jersey Department of Environmental Protection.

APPENDIX A

Proposed Plan for the Interim Remedy

Superfund Program
Proposed Plan

EPA Region II

Scientific Chemical Processing Site
Carlstadt, New Jersey

May, 1990

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan describes the preferred option for reducing the migration of contamination from the Scientific Chemical Processing Site (SCP Site). This document is issued by the United States Environmental Protection Agency (EPA), the lead agency for site activities, and the New Jersey Department of Environmental Protection (NJDEP), the support agency for this response action. EPA, in consultation with NJDEP, will select an interim remedy for the site only after the public comment period has ended and the information submitted during this time has been reviewed and considered.

EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation and Feasibility Study (RI/FS) reports and other documents contained in the administrative record file for this site. EPA and NJDEP encourage the public to review these other documents in order to gain a more comprehensive understanding of the site and Superfund activities that have been conducted there. The administrative record file contains the information upon which the selection of the response action will be based. The file is available at the following locations:

William E. Dermody Free Public Library
420 Hackensack Street
Carlstadt, New Jersey
(201) 438-8866

Hours: M-Th: 10:00am-5:30pm, 7:00-9:00pm
Fri: 10:00am-5:30pm, Sat: 10:00am-1:00pm

and

U.S. EPA Region II
Emergency & Remedial Response
Division File Room
26 Federal Plaza 29th Floor
New York, NY 10278

Hours: M-F: 9:00am-5:00pm

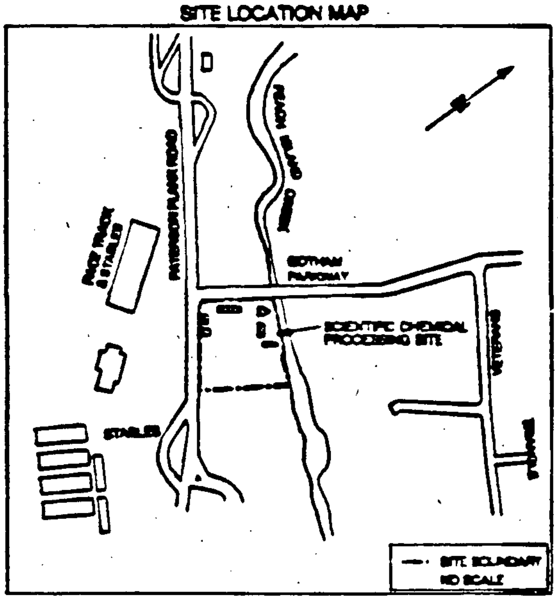
EPA, in consultation with the NJDEP may modify the preferred alternative or select another response action presented in this Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

DATES TO REMEMBER
MARK YOUR CALENDAR

May 19 - June 18, 1990
Public Comment period on interim remedy to reduce migration of contaminants

June 5, 1990
Public meeting at Carlstadt Borough Hall

SITE LOCATION MAP



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SITE BACKGROUND

The SCP Site is located at 216 Paterson Plank Road in Carlstadt, New Jersey. The site, which is owned by Inmar Associates, was used during the 1970s by the Scientific Chemical Processing, Inc. for treatment of a wide variety of industrial chemical wastes. In 1980, operations at the facility were ceased. The site was placed on the National Priorities List in 1983. Between 1983 and 1985, NJDEP required the site owner to remove approximately 250,000 gallons of wastes stored in tanks, which had been abandoned at the site. In April 1985, EPA assumed the lead role in response actions, and contacted approximately 140 Potentially Responsible Parties (PRPs) to offer them the opportunity to undertake an RI/FS at the site. In the fall of 1985, EPA issued Administrative Orders to these parties, requiring them to undertake these studies under EPA oversight. At that time, EPA also issued an Administrative Order to the site owner, Inmar Associates, requiring the company to remove and properly dispose of the contents of five tanks containing wastes contaminated with Polychlorinated Biphenyls (PCBs) and numerous other hazardous substances.

Inmar completed the tank removal in late 1986, and the PRPs initiated the RI/FS in April 1987. The RI/FS was conducted to identify the nature and extent of contamination at the SCP site, and to develop remedial alternatives to address the contamination. The results of the investigation indicated that hazardous substances are present in site soils and groundwater. These substances are migrating from the soils and groundwater in the shallow zone of the SCP site into the underlying groundwater aquifers, as well as into Peach Island Creek, a tidal waterway adjoining the site.

The detailed results of the RI can be found in the Remedial Investigation Report, contained in the administrative record file noted above. The results of the investigation can be summarized as follows:

-the geology of the site is comprised of the following units, in descending order- the shallow aquifer (which occurs approximately 2 feet below the ground surface), a clay layer (which occurs approximately 12 feet below the ground surface), a till aquifer, and a deeper bedrock aquifer;

- on-site soils, both at the surface and down to a depth of at least 10-12 feet, are heavily contaminated with hazardous substances, including volatile organics (total concentration as high as 12,167 parts per million (ppm)), base/neutral compounds (as high as 3,913 ppm), PCBs (as high as 15,000 ppm), petroleum hydrocarbons (as high as 81,600 ppm), as well as acid extractable compounds, phenolics, cyanide, pesticides, and inorganic compounds at similarly high concentrations.

- the shallow groundwater at the site is heavily contaminated with hazardous substances, including volatile organics (as high as 2,564 ppm), base/neutral compounds (as high as 68 ppm), acid extractable compounds (as high as 17 ppm), PCBs (as high as 17 ppm), petroleum hydrocarbons (as high as 2,270 ppm), as well as pesticides and inorganic compounds;

- contaminants have migrated from the shallow zone down into and through the clay layer which separates the shallow aquifer and the deeper aquifers;

- deeper groundwater at the site is contaminated with volatile organics and and semi-volatile organic compounds; and

- surface water and sediment in Peach Island Creek, a tributary of Berry's Creek which flows adjacent to the site, is contaminated with hazardous substances which were found in the soils and groundwater at the site.

The PRPs also conducted an FS to evaluate potential remedial alternatives for the most heavily contaminated zone at the site, (contaminated soils, sludges and shallow groundwater down to, but not including the clay layer). Various technologies for treating the most heavily contaminated zone were evaluated, including, solidification of the soils/sludges, chemical extraction of contaminants from the soils/sludges, and incineration of the soils/sludges. In addition, the FS evaluated the No Action Alternative.

The FS demonstrated that in order to treat the heavily contaminated saturated soil, it would first be necessary to remove the shallow groundwater from this zone. Consequently, each of the alternatives evaluated (with the exception of the No Action Alternative) includes implementation of a "dewatering" system. This system consists of:

> 1) installation of an underground slurry wall around the site perimeter, down to the clay layer;
>
> 2) extraction of groundwater from within the boundary of this wall; and,
>
> 3) subsequent treatment and disposal of the groundwater.

After dewatering, it could then be possible to treat the contaminated soils, either by excavation or treatment in place ("in-situ").

As described above, during the FS, treatability studies were performed to test the effectiveness of several treatment methods for soils and groundwater. The results of the studies indicate that, although there are several treatment methods which are potentially viable for remediation of soils and sludges, there are uncertainties regarding the relative effectiveness of various remediation technologies. Due to the high concentrations and wide variety of chemicals present in the soil and sludge, it is unknown whether any one technology will be adequate to remediate the soils and sludges. Consequently, additional data must be gathered in order to select a permanent remedy for the shallow zone which is protective of human health and the environment.

SCOPE AND ROLE OF PROPOSED RESPONSE ACTION

Though further work is planned to evaluate treatment technologies for the soils and sludges, EPA is proposing an interim action to temporarily reduce migration of contaminants from the shallow zone until further studies of the site are completed. This proposed interim action consists of site dewatering through installation of a slurry wall, collection of groundwater, and off-site treatment and disposal.

The SCP site, as characterized by the RI field investigations, is extremely complex, due the wide variety of contaminants present, the high concentrations of contaminants detected, and the many potential migration routes for these contaminants.

Consequently, EPA has divided the work at the site into components called "operable units" (OUs). These OUs for the site are defined as follows:

> OU 1: the shallow zone of the site, including contaminated soils and groundwater above the clay layer; and,
>
> OU 2: the deeper zone of the site and potential off-site contamination, including the deeper groundwater aquifers and Peach Island Creek.

The combination of chemical contaminants present within the area comprising OU 1 (including volatile organics, semi-volatile organics, PCBs, metals and petroleum hydrocarbons) poses significant technical issues in terms of treatability of the soils. Further data collection and testing of various potential treatment methods are desireable prior to identification of an effective remedy for this operable unit. It is anticipated that such studies will take approximately 12 months to complete.

Although a permanent remedy for OU 1 cannot be selected at this time, EPA is proposing implementation of a site dewatering system as the first phase of OU 1 in the interim. Since the dewatering system is a common component of all alternatives evaluated to date, (with the exception of the No Action Alternative), it will be consistent with any potential future remedy which EPA will select for the site. This alternative will be part of a future permanent remedy which will protect human health and the environment. Although this alternative is not <u>fully</u> protective in and of itself, it is expected to be effective in temporarily reducing further migration of contaminants from the shallow zone until a permanent remedy can be implemented.

SUMMARY OF SITE RISKS

An analysis was conducted by EPA through its contractor during the RI/FS to estimate the health and environmental impacts that could potentially result from the contamination at the SCP site. This analysis is commonly referred to as a baseline risk assessment.

The data collected as part of the RI revealed that at least 87 chemicals exist in the soil and shallow groundwater at the site. The highest concentrations of chemicals are found in the soils, sludge and/or groundwater above the clay lens at the site.

Many of the chemicals detected in the soils and groundwater are known carcinogens in animals and are suspected human carcinogens (e.g. PCBs, chloroform, 1,2-dichloroethane, methylene chloride.) Other chemicals detected at the site are known human carcinogens (e.g. vinyl chloride, arsenic, and benzene).

Many of the hazardous substances detected in the groundwater at the site were present at levels which far exceed Federal and State standards and guidelines for groundwater. In particular, the levels of numerous volatile organic compounds, PCBs, and several inorganics exceed the Federal Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act, and the New Jersey MCLs by orders of magnitude.

As evidenced by the data collected to date, there has been migration of contaminants from the shallow zone to deeper groundwater and Peach Island Creek, and there is a potential for continued migration absent the implementation of interim remedial action. Contamination released from the site may also pose risks to aquatic life and endangered species, such as the Pied-billed Grebe, through exposure to Peach Island Creek sediments and surface water.

SUMMARY OF ALTERNATIVES

Many alternatives for remediation of the first operable unit were evaluated in the FS, which is available in the information repositories noted above. However, because EPA is proposing an interim action for OU 1, only limited interim action alternatives are presented here. The three alternatives analyzed for the interim action to control migration are presented below. Following implementation of any of the alternatives, monitoring would be conducted until the permanent remedy for OU 1 is implemented. For costing purposes, it was assumed that quarterly monitoring would be conducted for three years.

Alternative 1: No Further Action

Capital Cost:	$ 0
Annual Operation and Maintenance (O & M) Costs:	$ 40,000
Present Worth (PW)	$ 109,000

Months to Design and Construct 0

Superfund regulations require that the No Action alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, EPA would take no interim action at the site to reduce migration of contaminants to groundwater and Peach Island Creek, but would continue to maintain the existing fence around the site property to restrict access to the site. The No Further Action alternative also includes periodic monitoring of groundwater.

Alternative 2: Site Dewatering through Installation of a Slurry Wall, Groundwater Collection and Treatment System

Capital Cost:	$ 4,586,000
Annual O & M cost	$ 109,000 (for 3 years)
Present Worth, (including 10% contingency)	$ 5,164,000

Months to Design and Construct: 12-24

Major features of this alternative include: installation of an underground slurry wall around the perimeter of the site, installation of a groundwater collection system within the boundary of the slurry wall, and construction of groundwater treatment plant to treat collected groundwater prior to discharge of the treated effluent to Peach Island Creek. The treatment plant would be designed to meet NJPDES requirements for discharge of treated groundwater to Peach Island Creek. (See preliminary discharge standards, provided to EPA by NJDEP by letter dated April 16, 1990, contained in the administrative record file for this site.)

In addition, an infiltration control barrier would be placed over the site. The function of this temporary barrier would be solely to prevent the infiltration of rainwater, limiting the volume of water requiring treatment, and thus the cost of treatment.

Alternative 3: Site Dewatering through Installation of a Slurry Wall, Groundwater Collection and Off-site Treatment and Disposal

Capital Cost:	$ 2,557,000
Annual O & M cost	$ 42,000 (for 3 years)
Present Worth	$ 2,933,000
(including 10% contingency)	

Months to Design and Construct: 9-15

This alternative is identical to Alternative 2, except that groundwater would be transported and disposed of at a facility capable of accepting the water with no pretreatment at the site. Consequently, construction of an on-site treatment facility would not be necessary.

Both Alternatives 2 and 3 would effectively reduce, but not eliminate, migration of contaminants via groundwater beyond the slurry wall boundary until a permanent remedy is in place.

EVALUATION OF ALTERNATIVES

The preferred alternative is to take interim action at the site by implementing Alternative 3. This alternative is a necessary component of any permanent future remedy for OU 1 (e.g. treatment of the soils/sludges) and would appear to provide the best balance of trade-offs among the alternatives with respect to the criteria that EPA uses to evaluate alternatives. This section profiles the performance of the preferred alternative against the criteria which apply to this interim action, noting how it compares to the other options under consideration.

Overall Protection of Human Health and the Environment: This criterion addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls or institutional controls. Alternative 1 would not be protective of human health and the environment since contaminants would continue to migrate from the soils and shallow aquifer to deeper aquifers and Peach Island Creek. Alternatives 2 and 3 would protect human health and the environment in the short term by reducing further migration of contaminants through the above migration pathways until a final remedy is in place.

Compliance with ARARs: This criterion addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) of Federal and State environmental statutes (other than CERCLA) and/or provide grounds for invoking a waiver.

There are several types of ARARs: action-specific, chemical-specific, and location-specific. Action-specific ARARs are technology or activity-specific requirements or limitations related to various activities. Chemical-specific ARARs are usually numerical values which establish the amount or concentrations of a chemical that may be found in, or discharged to, the ambient environment. Location-specific requirements are restrictions placed on the concentrations of hazardous substances or the conduct of activities solely because they occur in a special location.

CERCLA provides that if an interim measure is conducted, ARARs may be waived, since these requirements will be achieved upon completion of the permanent remedy. Because Alternatives 2 and 3 constitute interim actions, final cleanup levels for soil and groundwater do not have to be achieved, but will be addressed in the final remedy.

However, certain action-specific requirements, discussed below, will be attained as part of implementation of Alternatives 2 or 3.

Actions taken in Alternative 2 will comply with effluent limitations for any discharge from groundwater treatment plant into Peach Island Creek. In addition, the treatment plant will be designed and operated in compliance with Federal and State air emissions requirements. For Alternative 3, requirements pertaining to any off-site disposal facility will have to be met. Both Alternatives 2 and 3 will comply with the Executive Orders on Flood Plain Management, and Wetlands Protection, the Clean Water Act Section 404 General Standards for Permitting Stream Encroachment, and the New Jersey Soil

Erosion and Sediment Control Requirements (N.J.A.C. 4:24-1), and the regulations of the Hackensack Meadowlands Development Commission.

Long-term Effectiveness: This criterion refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. Given that this is an interim action, effectiveness need only be maintained for the duration of the interim action, which is expected to be no more than three years. Therefore this criterion will evaluate long-term effectiveness over a three year period.

Alternative 1 is not effective in the long or short term. Both Alternatives 2 and 3 will be effective in reducing the migration of contaminants from the shallow zone of the site, once implemented, and should maintain their effectiveness for the expected duration of the interim remedial action.

Reduction of Toxicity, Mobility or Volume:

This criterion addresses the degree to which a remedy utilizes treatment to reduce the toxicity, mobility, or volume of contaminants at the site.

Since neither of the Alternatives evaluated for this interim remedy employ treatment of the soils/sludges in the OU 1 zone, this criterion is not applicable to the soil/sludge in the OU 1 zone. Alternatives 2 and 3 do involve the treatment of contaminated groundwater, and should reduce the volume of contaminants in the shallow groundwater.

Short-Term Effectiveness: This criterion refers to the time in which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Alternative 1 presents the least short-term risks to on-site workers since no construction activities are involved in implementing the No Action alternative. However, it will not reduce any of the existing risks at the site. Alternatives 2 and 3 will require the execution of health and safety protection measures during the remedial construction to adequately protect workers. These measures may include requirements for protective clothing and respiratory protection. Health and safety measures to protect the community, such as dust ore vapor suppression, will also be required. However, neither Alternative 2 nor 3 present health and safety problems which cannot be successfully addressed by available construction methods.

The estimated time periods for design of the Alternatives and periods for construction are as follows: Alternative 2 - 9 months for design and 9 months for construction; Alternative 3 - 6 months for design and 6 months for construction. Therefore, Alternative 3 will reduce the migration of contaminants most quickly. However, both Alternatives 2 and 3 will provide benefits in terms of the time required for ultimate remediation of OU 1, since implementation of the dewatering now will expedite implementation of the permanent remedy ultimately selected.

Implementability: Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the selected alternative.

Alternative 1 is the simplest alternative to implement from a technical standpoint since it only involves actions to periodically inspect and sample the site, ensure restricted access to the site, and continue to provide information about the site to the surrounding community.

The operations associated with Alternative 2 (construction of a slurry wall, dewatering system, and groundwater treatment system) generally employ well established, readily available construction methods. However, the placement of a treatment plant on site may pose some difficulties upon implementation of the permanent remedy for the soils, since the plant would need to be moved in order to obtain access to the soils for any future treatment. In addition, the ability of a treatment system to meet the administrative requirements (see below) for discharge to Peach Island Creek, will require further investigation.

The operations associated with Alternative 3 (construction of a slurry wall, dewatering system, and off-site treatment of groundwater) employ well established, readily available construction methods. This alternative would necessitate contingency plans to ensure that adequate storage capacity exists for collected groundwater, in the event of a significant increase in the estimated flow due to unanticipated infiltration.

Administrative requirements associated with Alternative 2 include compliance with NJPDES requirements for discharge of treated groundwater to Peach Island Creek, or for Alternative 3, disposal of groundwater at an approved off-site facility will require compliance with standards established for the receiving facility. In addition, both alternatives would include periodic monitoring to ensure their effectiveness.

Both alternatives are implementable from an administrative and technical perspective.

- Cost: Cost includes capital and operation and maintenance (O & M) costs.

Alternative 1, No Action, has an estimated present worth of $109,000. The primary constituents of this cost are inspection and sampling. The present worth cost estimates of Alternatives 2 and 3 are $5,164,000 and $2,933,000, respectively. The major cost items associated with Alternatives 2 and 3 are construction of the slurry wall and groundwater treatment or disposal.

The cost estimates are based on the assumption that approximately 1,000,000 gallons of groundwater will be treated.

State Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative. This criterion will be addressed when State comments on the Proposed Plan are received.

Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the RI/FS reports and the Proposed Plan.

SUMMARY OF THE PREFERRED ALTERNATIVE

In summary, Alternative 3 would achieve risk reduction in the short term by minimizing further migration of contaminants from the site. Alternative 3 will not conflict with any future remedy which will be selected to address the contaminants remaining at the site. Therefore, Alternative 3 is believed to provide the best balance of tradeoffs with respect to the evaluation criteria and is proposed by EPA as the preferred alternative.

THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

EPA solicits input from the community on the cleanup methods proposed for each Superfund response action. EPA has set a public comment period from May 19 through June 18, 1990 to encourage public participation in the selection of an interim remedy for the SCP Site. The comment period includes a public availability session at which EPA will discuss the RI/FS report and Proposed Plan, answer questions, and accept both oral and written comments.

The public meeting for the SCP Site is scheduled for June 5, 1990 from 7pm until 9pm, and will be held at the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, New Jersey.

Comments will be summarized and responses provided in the Responsiveness Summary section of the Record of Decision (ROD). The ROD is the document that presents EPA's final selection for response action. Written comments on this Proposed Plan should be sent to by close of business June 18, 1990:

Pat Evangelista
Project Manager
U.S. Environmental Protection Agency-Region II
Emergency & Remedial Response Division
26 Federal Plaza, Room 747
New York, New York 10278

APPENDIX B

Sign-in Sheet of Attendees at the June 5, 1990 Public Meeting

UNITED STATES PROTECTION AGENCY
REGION II
PUBLIC MEETING
FOR
SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
CARLSTADT, NEW JERSEY

JUNE 5, 1990
ATTENDEES

(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING	MAILING LIST
Peter M. Papasavas	23 Wayne St. Apt. 23	Jersey City	07302	(201) 332-2233	Shaft & Shaft	✓
James McCartney	216 Haddon Ave	Westmont	08108	(609) 858-7200	Sliney, Dash & Gibbs	✓
Steve MacGregor	401 E. State ST	Trenton	0	609-984-3068	NJDEP	✓
Pamela Lange	401 E. State St	CN 028 Trenton	08625	6096331455	NJDEP	
Phyllis Marino	150 J.F.K. PKW	Short Hills		201-379-4800	Budd, Larner	✓
Ann Conroy	80 Park Plaza	Newark	07102	201 642-3900	Clapp & Eisenberg	✓
Andrew Nowack	10 Hudson Road	Garden City	11570	516 352-2432	Siff Rosen & Parker	✓
Bob Canavan	RD1 Box 407	Somerset	08873	201 873-2378	Hoagland Moran	✓
Stacey Waring	PO BOX 3309	Secaucus	07096	201-902-9000	Carlstadt Group	
Lynda McLaughlin	1 Lackawanna Plaza	Montclair		201-509-7500	Garrity, Fitzpatrick	✓
DONALD J MURPHY	RIVER DRIVE CENTER 2	ELMWOOD PARK	07407	201-794-6969	LANGAN ENVIRONMENTAL SERVICES INC	✓
HARRY BAKER	W/R / OEM			935-2266		
TRUDY HACKENBERG	500 MADISON ST.	CARLSTADT	07072	201-939-7309	Coordinator OEM Carlstadt	✓
Mike McGann	71 Union Ave	Rutherford	07070	201 933 1166	South Bergen Fire & Carlstadt LEPC	✓

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UNITED STATES PROTECTION AGENCY
REGION II
PUBLIC MEETING
FOR
SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
CARLSTADT, NEW JERSEY

JUNE 5, 1990
ATTENDEES

(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING	MAILING LIST
WL Toetzsch	165 Carlton Dr	Basking Ridge NJ	07920		—	
Bill Hengemihle	26 W Dry Creek Cir	Littleton Co	80120		—	
Alfred Drogo	508 First St	Carlstadt				
Joseph A. Jusiaia	85 Humboldt St	Wood Ridge	07075	9390810	MAYOR	
Michael Mullen	10 Washington St	Morristown	07016			
Karen Tane	Bergen Record					
David Chapman	17 Corn Hill Dr.	Morristown NJ	07960			

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UNITED STATES PROTECTION AGENCY
REGION II
PUBLIC MEETING
FOR
SCIENTIFIC CHEMICAL PROCESSING SUPERFUND SITE
CARLSTADT, NEW JERSEY

JUNE 5, 1990
ATTENDEES

(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING	MAILING LIST
GERRY COSCIA	RIVER DRIVE CENTER 2	ELMWOOD PARK	07407	201-794-6969	LANGAN ENVIRONMENTAL	YES.
[illegible]	3 Horizon Ter	Wayne	07470	—	—	Yes
Dante Romanini	110 Wynwood Ave	Cherry Hill	08002	(609) 663-[illegible]	Transtech Industries,	Yes
Gregory J. Coffey	10 Washington St.	Morristown	07960	(201) 539-1000	Schenck, Price, Smith & King Inmar Associates	Yes
Michael K. Mullen	10 Wash. St.	Morristown	07960	" "	+ Marvin H. Mahan " "	
Mike O'Hara	866 E. Main St	Middletown, NY	10940	914-343-0660	Whelan Engineering	yes
[illegible]	9 Taylor St	[illegible]	07643	201 4409592		YES

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APPENDIX C

May 19, 1990 Public Notice in the Bergen Record

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE PROPOSED INTERIM REMEDY FOR THE SCIENTIFIC CHEMICAL PROCESSING SITE LOCATED IN CARLSTADT, NEW JERSEY

Bergen Record, Saturday, May 19, 1990

The U.S. Environmental Protection Agency (EPA) as lead agency for the Scientific Chemical Processing (SCP) site will hold a Public Meeting to discuss the Remedial Investigation/Feasibility Study (RI/FS) and the Proposed Plan for an Interim Remedy at the site. The New Jersey Department of Environmental Protection (NJDEP) as a support agency will also be in attendance. The meeting will be held on June 5, 1990 at 7:00 p.m. in the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, New Jersey.

As a result of the RI/FS conducted to date, EPA determined that although there are several treatment methods which are potentially viable for the remediation of contaminated soils and sludges, there are uncertainties regarding the relative effectiveness of various remediation technologies. Due to the high concentrations and wide variety of chemicals present in the soil and sludge, it is unknown at this time whether any one technology will be adequate to remediate the soils and sludges. Consequently, EPA is proposing an Interim Remedy to temporarily reduce migration of contaminants from the shallow zone of the site, while additional data is gathered. This Interim Remedy will be the first component of the permanent remedy to be selected for the shallow zone of the site. Amongst the options evaluated for an Interim Remedy at the SCP site are the following:

INTERIM REMEDY ALTERNATIVES

Alternative - 1:	No Further Action
Alternative - 2:	Site Dewatering through Installation of a Slurry Wall, Ground Water Collection, On-site Treatment and Disposal
Alternative - 3:	Site Dewatering through Installation of a Slurry Wall, Ground Water Collection, Off-site Treatment and Disposal

The no further action alternative was evaluated as required by the National Oil and Hazardous Substances Pollution Contingency Plan.

Based on available information, the proposed Interim Remedy at this time is Alternative - 3. EPA and NJDEP welcome the public's comments on all alternatives identified above. EPA will choose the Interim Remedy after the public comment period ends and consultation with NJDEP is concluded. EPA may select an option other than the proposed alternative after consideration of all comments received.

Complete documentation of the project findings is presented in the Administrative Record File, which contains the RI and FS Reports and the Proposed Plan. These documents are available at either the William E. Dermody Free Public Library or EPA's Region II office in New York.

The public may comment in person at the public meeting and/or may submit written comments through June 18, 1990 to:

Pat Evangelista
Remedial Project Manager
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278
(212) 264-8311

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